Economic Policy Paper
on
Light Engineering
&
Electronics Enterprise in Bangladesh

Prepared
under
The DCCI-CIPE/ERRA Project
(CIPE is an affiliate of the US Chamber of Commerce, Washington DC, USA)

The Dhaka Chamber of Commerce and Industry (DCCI)
65-66, Motijheel Commercial Area, Dhaka-1000

2005

Economic Policy Paper
on
Light Engineering & Electronics Enterprise in Bangladesh

Prepared By

Dr. K Siddique -e-Rabbani
Professor of Physics, Dhaka University and
Member, National SME Taskforce

Publishers

The Dhaka Chamber of Commerce and Industry (DCCI) &
The Center for International Private Enterprise (CIPE)
(CIPE is an affiliate of the U. S. Chamber of Commerce, Washington DC, USA)

Advisors

M. A. Momen, President, DCCI
Hossain Khaled, Sr. Vice President, DCCI
Hossain A. Sikder, Vice President, DCCI

The Center for International Private Enterprise (CIPE) Officials

Miss Brooke Millis
Program Officer for South Asia

The Dhaka Chamber of Commerce and Industry (DCCI) Officials

Ferdaus Ara Begum
Addl. Secretary (R&P), DCCI and
Coordinating Officer, DCCI-CIPE/ERRA Project

The Project supported by a Grant from the Center for International Private Enterprise in Washington DC, USA.

Contents

Theme of the Economic Policy Paper (EPP)

Snatching the power of innovation is the greatest damage one can cause to a human being and was practiced deliberately by the colonial powers of the past centuries. While putting up efforts for Global poverty alleviation in the present era we have been doing just that inadvertently, or under the spell of a subconscious hypocrisy within ourselves. This is the reason behind all failures of the past decades that has widened the global economic disparity. The policies of our national Government being no different are creating an economic disparity within the nation as well. We have to understand that development can only come from the people, their ingenuity, and their skill, and any development program should aim at promoting this capability. The only remedy that can succeed is giving back the people the freedom of innovation, and formulating policies to foster and enhance this very power. If we do not strive for that no one on the earth can live in peace and prosperity. A couplet from Nobel Laureate Rabindranath Thakur (Tagore) form a major philosophical guide,

"You will equal in disgrace and humility to those
Whomsoever you have humbled."

EXECUTIVE SUMMARY

1. Background and basic philosophy:

The author, simultaneously pursuing entrepreneurship together with scientific and technological research, carries with him insider information which the policy makers often lack in this country. Therefore many of the priorities that will be presented here may differ from traditionally held views. ***The author feels that orthodox Economics, developed in the post industrial revolution era, is inadequate in dealing with the requirements of a pre-industrial regime, which is more appropriate to the condition existing in most of the Third World including Bangladesh. The whole situation should be reviewed from a pro-people viewpoint of development where the role of a technologically innovative entrepreneur, particularly in Light Engineering and Electronics, should be the most important one after agriculture.*** The author feels that an anti-industry mindset created by the long past colonial rulers still haunts Bangladeshi minds, particularly of those in bureaucracy related to the financial policymaking, and plays a big role in obstructing the growth of small industries in this country. ***The author believes that taking away the power of innovation is equivalent to destroying a 'human being'.*** Unfortunately, this has been done deliberately by the colonial powers in the past, and inadvertently by most of the modern economic and development policies aimed for poverty alleviation. With the enthusiasm for a quick economic growth we tend to take away the power of innovation from the poor by forcing them to adopt technology that have been developed abroad and are completely alien to them, turning them into essentially mere "slave-labourers" who have to perpetually depend on others for their survival. Such policies should be recast completely if we really mean what we preach. ***The author believes that to take a nation out of stagnation and poverty into a growth economy, the foremost necessity is to bring back the power of innovation, to bring back the self confidence of the people, and to bring back the faith that destiny is in their own hands.*** They have to be given the opportunity and freedom to exercise their own intellects and innovative powers to make their way out of poverty. Any support should be aimed at fostering this process. To promote the process of poverty alleviation and development through fostering indigenous innovation the author has presented a new model, termed "Scouting Ant Model" for development which may be an important food for thought. All our efforts should be aimed at creating development through the hands of the people themselves.

2. Definition- Light Engineering and Electronics

The choice of these specific sectors is due to the pre-assignment of the title itself. Electrical sector is an important one related to these two and to keep within the assigned title the author has included it in light engineering. A production process should have at least a machining activity to consider it under the light engineering sector. All variations of the industry producing electronic devices have been considered under the Electronics sector having various entry levels, right from making basic semiconductor components to finished devices. However, only screw driver assembly of ready made modules have been kept out of consideration. The author has chosen this paper to limit itself to the domain of 'small' enterprises.

3. Characteristics and Importance

Light Engineering and Electronics industry in the 'small' sector is very important for the development and economic emancipation of any economically developing nation. Their characteristics and importance have been discussed with respect to the following.

m. Enhancement of the quality of life- the prime target.
n. Poverty alleviation and creation of employment – next targets.
o. Technopreneur – the driving force behind small industry
p. 'Economics' - unable to handle industrial small sectors
q. What these sectors need

r. Indigenous Technology needed, not imported ones
s. Home market first – to accelerate growth
t. Expanding the results of microcredit
u. Contribution to national development
v. University-industry collaboration, technology progression- only possible with indigenous technology based small enterprises.
w. Self confidence & prestige building.
x. World Retrospective - Small industries form the backbone of a nation

4. Bangladesh Scenario

Historically large industries always drew the attention of policymakers since Pakistan days which continued into the Bangladesh era. In the eighties some supportive policies implemented through BSCIC favouring small industry saw a boom in these sectors, which however dwindled over the years. Since the nineties, because of wrong policies, possibly influenced by vested interest groups that favoured imports over local production, small manufacturing enterprises are facing extinction unless remedial actions are taken immediately.

5. Potentials and Case Studies

Bangladeshi technicians are very skillful in copying light engineering products whose workings are visible. Particularly after the independence of Bangladesh when there was a dearth of imported commodities, the technical innovative ability of the people was demonstrated aptly. They now make a host of products and spares of different industrial machinery, for agriculture and for transport. However, they lack in knowledge based technological aspects which cannot be 'seen', such as, metallurgical requirements of fabricated products and avoiding microscopic defects, etc. This sector has not yet been able to draw many University educated engineers, which is the reason for some limitation in technology. The Electronics sector is fortunate to have many graduates in related science and technology as entrepreneurs, and therefore a lot of development has taken place in indigenous technology. This is a knowledge based sector where workings are not visible, but Bangladeshi intellect appears to be very much suited to this sector. Even with no formal education in electronics, enthusiasts through self –learning have become successful techno-preneurs. They carry out own R&D and develop products that suit Bangladesh situation specifically. This allowed some of them to still survive the severe onslaught of opposing policies of Government that go against the industry very much. Assembly only electronics industries, particularly in television once thrived and in fact these industries contributed to the widespread use of this item by bringing it within the affordability of the common people. However, due to wrong Government policies favouring import, this industry has almost been destroyed in the recent years. The basic messages that are obtained from the case studies are summarized below.

a) Items that are difficult to import either due to bulk or high cost are potential candidates for indigenous development by small enterprise.
b) Electronic items specially designed locally for the home market has more chances of success than simply copying a foreign product.
c) Targeting the home market makes an easier venture, and there is better chance of success. Eventually this can lead to export.
d) A technology innovator can get round the requirement of initial finance though ingenuity, skill and trustworthiness in the society.
e) A technology innovator as the decision maker of a technology based growing enterprise increases the chances of success.
f) A technology innovator in the decision making chair can bring in newer innovative products to the market which others cannot.

g) A non–technology person in the decision-making chair of a technology based manufacturing company soon opts for easier routes that promote trading rather than manufacturing.
h) A single technology innovative entrepreneur can contribute to the development of a whole cluster of small enterprises, including backward and forward linkage. Therefore such technology leaders should be supported.
i) The Government tax policies finally dictate the viability of an industry. Simply through wrong tax policies favouring import to local production, the Government can destroy a whole sector in spite of the presence of all other favourable factors for an enterprise.
j) Wrong tax policies open up the opportunity of harassment by corrupt Government officials which form the major obstacle to the survival and growth of small industries in Bangladesh.
k) Rich vested interest groups can destroy local enterprises easily by influencing Government policies.
l) Funds given to an already successful and growing manufacturing company are utilized better, and there is less risk of failure. Given a favourable tax regime, this creates an environment where proliferation occurs since capable new entrepreneurs feel encouraged to invest from own resources.
m) The presence of a technical person at the decision making level of the Government can make a whole lot of difference, while their absence crushes indigenous innovation.
n) No priority is given to small enterprises to utilities like electricity and gas. This results in illegal acts performed by entrepreneurs, which eventually leads to closure of the enterprise.
o) Bangladesh Government had some supportive role to small manufacturing enterprises in the eighties who have now established as leaders. This support dwindled and almost vanished since nineties.

6. Numbers and Statistics

With a background of opposing environment, created particularly by wrong Government policies and its implementing personnel, small enterprises in light engineering and electronics sector could not make the impact in spite of the potentials they had. All numbers should be viewed and interpreted with this in mind. Table-S1 gives a overview of the enterprises in the light engineering sector which is based on insider estimates as there has been no survey in the country except one done by BSCIC in 1994, which again did not separate out the sectors of interest in this paper.

Table-S2 below gives the number of small enterprises in the electronics sector and presents a striking picture how wrong Government policies can wreck the enthusiasm and efforts of the common people. In order to analyse this decline the author presents some interesting findings represented in Figure-S1 and Table-S3. Fig-S1 showing the variation of import duties on finished Television and on its raw materials presents a picture of the 'tug of war' between the importers and the local producers. It has to be borne in mind that local producers have to pay further VAT and taxes, so at the import level total incidence of taxes on raw materials should be about 20% below that for similar finished items, which has been the norm with many other products. Table-S3 shows how NBR has formulated clear suicidal tax policies for the nation in spite of repeated appeals and requests at the highest levels. This also acts as a proof for the author's contention that we are yet to come out of the past colonial mindset.

There is a potential annual domestic market of about Tk.1100 crore (Tk.11 billion) for products that can be manufactured by local producers with the technology that they have at present, but this will entirely depend whether the Government is willing to give this market to them or to the importers.

Table-S1: Relevant estimated figures on Light Engineering industry, 2006
(Table-2 in main report) (Source: BEIOA)

No. of units	30,000		Average profit rate	10%
No. of employees	90,000		No. of years needed to realize investment	10 years
Average no. of employees per unit	3		No. of units having own sales center	100
Highest no. of employees in a single unit	25		Marketing strategy	Through individual contacts
Average capital investment per unit	Tk. 1 lakh		Organising fairs etc.	Irregular
Highest capital investment per unit	Tk. 5 lakh		Advertisements, if any	none
Ratio of Working capital to fixed capital	0.05		Common marketing effort through Association	none
Total yearly production volume	Tk.500 crore*		Export (2003-2004)	US$ 0.5 million
No. of units in and around Dhaka	12,000		Link with other larger bodies	Yes, with FBCCI

* This is the author's estimate based on no. of units and estimated volume of business. The figure quoted by BEIOA was not reliable.

Table-S2: Estimated number of Electronics manufacturing/assembly enterprise
(Table-5 in main report)

	Pre-2002 period		**As of 2005**	
	No.of units	Annual turnover, Crore Tk.	No.of units	Annual turnover, Crore Tk.
Indigenous technology based enterprises	2000	200	~500	50
Assembly units of TV, Radios, etc.	300	50	few	negiligible
Total number of units	**2300**	**250**	**~500**	**50**

Source: Industry-insider information (Bangladesh Electronic Innovative Manufacturers' Association, BEIMA)

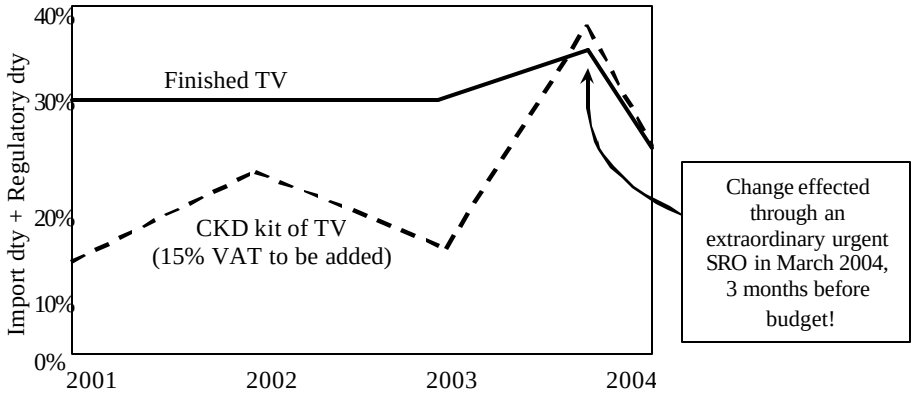


Fig.S1: duties on TV, finished & CKD kit
(Fig.2 in main report)

Table-S3: Total Tax Incidence (TTI) of imported finished UPS and its components
(Table-7 in main report) (almost similar since 1998)

Finished UPS			Raw materials of UPS[#]	
Imported with a computer HSC: 84.73		imported separately HSC: 8504.40.90	Rechargeable Battery HSC: 8507.20.00*	Other electronic components**
CD= 0% SD= 0% VAT= 0% AIT= 0% IDS= 4% ATV= 1.5%		CD= 6% SD= 0% VAT= 0% AIT= 0% IDS= 0% ATV= 1.5%	CD= 25% SD= 35% VAT= 15% AIT= 3% IDS= 4% ATV= 1.5% FVAT =15%	CD= 13% SD= 0% VAT= 15% AIT= 3% IDS= 4% ATV= 1.5% FVAT =15%
5.7%		**7.7%**	**135.8%**	**60.2%**

Notes on the above table:
The battery cost is about 25% of the total cost of raw materials in a UPS. So the effective duty would be about 80% on the raw materials of a UPS.

* This particular type of rechargeable battery (sealed type) or accumulator is not produced in the country, and therefore, there is no justification to impose the high tax intended for the protection of locally made wet lead acid batteries.

** Mainly under HS Codes:, 85.32, 85.33, 85.41, 8542.21.00, 8542.29.00, 8542.60.00

Abbreviations CD: Customs duty, SD: Supplementary duty, VAT: Value Added Tax, AIT: Advance Income Tax, IDS: Infrastructure development surcharge, ATV: Advance trade VAT, FVAT: Factory VAT (for local production). For reasons described elsewhere, local electronic industries do not get any VAT rebate, so FVAT applies also to items for which any VAT has been paid at earlier stages, resulting in a VAT rate more than twice the normal rate.

7. Misconceptions and mistakes in existing promotion efforts

Because of a lack of real feedback from the people involved in the small enterprises, misconceptions abound among policymakers and some of the major ones have been discussed in this paper. The following are the topics discussed in the main report.

a) Primary level: Technolo gy, Training and funds are not problems
b) Secondary Stage: Fund is necessary but not a serious problem
c) Worker training not problem if techno-preneur is capable
d) Why policymakers see technology and fund as problems
e) Exploitation of cheap labour – not desirable for long term development
f) Export thrust - wrong priority
g) No growth possible with fully imported technology
h) University-industry collaboration: not possible with imported technology
i) Loans to fresh entrants: does not result in success
j) Subsidies and grants – wrong prescription, do not go to the right person

8. Obstacles to Light Engineering and Electronics industry

It is a common scenario in Bangladesh that a certain small sector appears to grow and show promise, and after a few years it starts declining. The factors behind this trend has been analysed to identify the obstacles. Usually technology innovators seek out niches in the market and initiate new products. As soon as it succeeds and creates a large domestic market, rich traders influence the NBR to formulate policies to favour import of similar products against local production, and that is when the sector starts to decline. The major obstacles and challenges identified and discussed in the main report are presented below.

Major obstacles to new entrants

a) Inverse Government tax and tariff policies
b) VAT scheme and corruption
c) Non availability of high quality raw materials
d) No priority right in utility services

e) Harassment in the name of Labour laws
f) Harassment by law enforcing agencies while delivering goods
g) Marketing controlled by dealers
h) Corporate Income Tax
i) Challenges from international trade
j) Absolute financial authority to NBR. This is discussed further below.

National Board of Revenue or NBR- the Government agency created mainly for the job of tax collection, has now the authority for virtually all the fiscal measures of the Government, namely budget and tax policy formulation, their implementation, tax collection and adjudication of tax evasion. Budget is linked to the country's future where expertise and vision in many branches of national development, e.g., technical, cultural, financial, political, etc. are involved and it needs an appropriate mindset which is entirely different from that of a tax collector. It also needs elaborate research and archiving of past data based on which future policies are to be made. NBR does not have these capabilities and facilities either. Therefore policies are made on adhoc bases, on the whims of individuals, which easily opens up ways to foul play. Besides, giving a single organization such vast powers, particularly in financial matters, is sure to invite corruption, which it actually did, harming national interests in almost all sectors. ***In fact it came out that NBR is the topmost major obstacle to the growth of small industries.***

That NBR has an anti-industry character is corroborated by facts. The following are a few examples.
i) The inverse tax structure for Television assembly and for electronics items as detailed above clearly shows the influence of traders on the NBR, policies always going against industry.
ii) In the national budget 2000-2001, indigenous electronic industry was given a simplified way to pay VAT based on the total turn-over rather than on actual value addition. In spite of repeated appeals and requests NBR never implemented this budget proposal.
iii) On the other hand NBR was very prompt in implementing VAT reduction for retail traders, which went down from 2.2% to 2% and then to 1.5% within a span of about three years between 1998 and 2001.

9. Recent developments

Recently an SME Taskforce was formed, the author being a member. The Taskforce presented a set of recommendations to the Government after about a year of discussions and feedback. The Government has approved most of the recommendations, which became part of the Industrial policy 2005. Unfortunately, some of the vital recommendations, related to tax rationalization at import, and VAT waiver and simplification for the smallest of the small enterprises, were not approved. However, the author has reasons to believe that initially these waivers were approved and published in the national newspapers with bold headings, when vested interest groups working against local industry pursued the Government to change the decision a few weeks later. This later decision was however never published in the media, thus bluffing the people and helping create a public opinion that the small entrepreneurs of the country failed to grow in spite of such facilities by the Government. Some of the relevant Taskforce recommendations are given in the main report and the author feels that all of the recommendations should be approved and implemented immediately. The author also reported a recent attempt by certain quarters in increasing the ceiling of 'Small manufacturing enterprise' as defined by the Taskforce and adopted in the Industrial policy, apparently to siphon off the lion share of specially allocated funds by the 'not-so-small' enterprises, which, the author feels, must be resisted.

10. Experience of neighbouring countries

Experience of India is very relevant as it shares a similar colonial past and similar culture and human behaviour. India has understood the problem of harassment by tax officials a long time ago and seriously took measures for its prevention. The promotional efforts started as early as in 1978, but the tax harassment issue was taken seriously after 1991. As of the year 2000, an enterprise with an annual turn-over of Rs.1crore or less do not have to register with any Government organization, nor has to pay any excise duties. Besides no excise official can visit the premises of an enterprise which pays taxes up to Rs.10 lakh annually, without the permission of higher authorities. These steps have borne fruit and the results have been discussed in the main report. It has also been reported that loan schemes have not been that successful, which agrees with the contention of the author vented in several places in this report.

Experience of Thailand has also been discussed. Not having a colonial past Thailand has less problems with tax officials harassing small enterprises, but it is not totally absent. Besides, their tax rates are considerably lower than ours which removes a major deterrent of tax payment. Their Government website reported results of a survey which indicated that it is the larger enterprises which are interested in loans. Small entrepreneurs almost universally got the funds from own resources, and from friends and relatives – again supporting the contention of the author.

11. Recommendations - removal of obstacles for progress

The author has presented some recommendations, starting off with their basic philosophy. The main point that the author wants to make is that an environment has to be created so that 'Small manufacturing enterprises' can work uninhibited and can earn a 'profit'. If these can be ensured through appropriate fiscal policies related to import and local production, all other necessary factors like funds, technology, etc., will present themselves automatically due to market dynamics. In order to allow the local entrepreneurs the scope for manufacturing technological products, there should be general policy that no finished product should be allowed entry at zero import duty or zero VAT. If necessary duties thus paid may be returned to organizations which the Government wants to help in specific cases. The other points that he discussed are the following.

a) Defining Micro and Mini Enterprise (MME) for manufacturing
b) Relaxation of requirements for Government registration
and for membership in Associations
c) R&D support through tax relief, not grant or subsidy.
d) VAT collection at retail point.
e) Loans without collateral for existing enterprises with potential to grow.
f) Selection of the right entrepreneur through *Scouting Ant Model*
g) Setting up local R&D, QC and business support facilities
h) Procurement of quality raw materials through association.
i) Co-operative Marketing and promotional efforts
j) Training of human resource, short term, long term
k) Quality Control for local and imported products, and anti-dumping
l) Going slow in international trade contracts (BIMSTEC, SAFTA, WTO)
m) Priority in utility services (Electricity, gas, etc.)
n) Government Procurement, relaxing formal requirements
o) Reconstitution of NBR, dispersal of authority
p) S&T and Industry Ministry to provide Venture capital.
q) Frequent changes in top Government positions should be stopped.

12. Last words

Proliferation of MME's throughout the country is the only way that we can reduce poverty. There is no other way out. People have to be given the right environment where they themselves can fight poverty using their own intellect and skills, and where no one with the authority of the Government is going to stop them in this endeavour. In fact the Government does not have to spend any money at all for poverty alleviation. ***All it has to do is to simply waive the tax and VAT on MME's and publicise the decision.*** At present the Government gets very little tax from such MME's as they have not proliferated, so waiving such taxes will have negligible impact on the net revenue. On the other hand the spectacular growth in MME's these measures are expected to bring will trigger a vibrant economic growth which will automatically increase the revenue earnings manifold, create employment, and will take people out of their poverty, and top of all, will allow the nation to stand on its own foot with dignity among the nations of the world. People, even the poorest of the poorest, do not want grants or aids. They want to work their way out of poverty themselves where agriculture and MME are the only vehicles available. ***Basically the Government does not need to promote MME's, all it has to do is to see that it does not pose an obstacle itself. The ingenuity and motivation of the people will do the rest. To help, the Government can improve communications, ensure supply of electricity and gas, improve the law and order situation, and provide good education giving emphasis on science and technology, and that will create the magic!***

Abbreviations, Counting and currency conversion

BCSIC: Bangladesh Small and Cottage Industries Corporation
BCSIR: Bangladesh Council of Scientific and Industrial Research
BEIMA: Bangladesh Electronic Innovative Manufacturers' Association
BEIOA: Bangladesh Engineering Owners Association
BIMSTEC: Bangladesh, India, Myanmar, Srilanka, Thailand Economic Co-operation
BITAC: Bangladesh Industrial Training and Assistance Centre
CKD: Completely Knocked Down
FBCCI: Federation of Bangladesh Chamber of Commerce and Industries
IC: Integrated Circuit
ISO: International Standards Organisation
MME: Micro and Mini Enterprise
NBR: National Board of Revenue
PCB: Printed Circuit Board
PKSF: Palli Karmo Sahayak Foundation, (Foundation for helping rural activity)
QC: Quality Control
R&D: Research and Development
SAFTA: South Asia Free Trade Agreement
SME: Small and Medium Enterprise
UPS: Uninterruptible Power Supply
VAT: Value Added Tax
WTO: World Trade Organisation

Definitions

Technology: Placed between Science and Engineering, technology creates new ways and means of utilising the understanding of science to make items for the benefit of humankind.

Techno-preneur: A technical innovator turned entrepreneur

Counting Conversion:

1 Lakh = 100,000 = 0.1 million
1 Crore = 100 Lakh = 10 million

Currency Conversion
US $ 1.00 = Bangladeshi Tk.70 (approx)
US $ 1.00 = Indian Rs. 50 (approx)

1. Preamble

1.1 Why a scientist is authoring this paper

While working in a developed country towards a Ph.D. in Microelectronics, the author reasoned that without technology his own country is never going to survive in the modern world with due honour and prestige, and who else will do it beside the scientists and technologists whom this soil produced and nurtured? He returned immediately after getting the degree, turning down lucrative offers in the lands of plenty. While working at the Dhaka University he realized that unless science and technology research is geared to the development of the people, it loses its relevance and motivation, and in a Third World where the funding comes by literally grabbing the morsels from the hungry millions, it seems to be immoral too. While developing pro-people technology he found out that unless the technology is commercialized it does not reach the common people, it lies useless on the research table. Following conventional practice and advice from peers he tried commercialization of his products through others who were well in ahead in business, but a couple of attempts failed miserably. Ultimately, he turned himself into an entrepreneur to commercialise his electronic products, side by side with his teaching and research at the University. The effort succeeded and soon the enterprise gained a leading position in the country. He could see much of the prospects and problems of this industry from within and soon found out that our own Government policies, particularly those related to tax and VAT, and the people who enjoyed the authority of implementing these policies stood as the greatest obstacles to the growth of indigenous small industry. It naturally led him to lobbying with the relevant Government agencies for the cause of indigenous technology based enterprises, made him a member of the National SME Taskforce, and an organizer of small electronic innovative manufacturers who could not group themselves earlier because of their sub-survival existence due to the faulty national policies. Thus he was introduced to the Dhaka Chamber of Commerce and Industries (DCCI) which is also fighting for the small industries in the country, and which led to this proposal for authoring this paper, a very important one in the context of Bangladesh.

The author carries with him much insider information obtained through direct experience which the policy makers often lack in this country. Therefore many of the priorities that he will present here may differ from conventionally held views. He will also present a new model for development in the Third World which may generate important food for thought.

1.2 Pro-people development and inadequacy of orthodox Economics

Orthodox Economics has a built-in inadequacy in dealing with pro-people development concepts. For example, before the 'micro-credit' revolution poor recipients were not considered as 'clients' at all under conventional banking practice as they cannot provide the necessary collateral. The basic needs of people who do not have adequate buying capacity is again not considered a 'demand' in Economics. These people are simply 'non-existent' in the books though they exist in very flesh and bone on this mother earth, they have 'real' needs to survive, to earn a living, to live with dignity, and the 'urge' to contribute to the society. The same difficulty is faced when one is planning for the development of Small Scale Enterprises in a Third World, in which Light Engineering and Electronics sectors, the subjects of concentration of this EPP, make up the major players. Most of the small enterprises in a country like Bangladesh belong to the informal sector, they are not registered in some way with the Government machinery or the tax network, nor they take any loans from banks because of valid reasons to be discussed in detail later. Government policies prepared following the models of orthodox Economics do not 'see' beyond the ones that are registered, or who has not taken any loan from banks because they need hard-core facts and figures on which to formulate policies

and programmes. Because of this most of the small enterprise promotional programmes that we see in Bangladesh at different times draw their plans on 'fresh canvas' each time, as if there existed no small enterprises till that time. Almost all of these programmes give priority to funding of new enterprises and training of workers as the main priorities, which, has so far not made any significant change in the scenario, except plundering and wastage of scarce resources by opportunists, and increasing the poor nation's debts. Over the last 50 years or so when much of today's Third World became independent, in spite of ambitious policies, and commitments of huge amounts of resources to promote small industry, nothing spectacular has happened except in some countries which could master enough strength to deviate from orthodox economic models and thinking processes.

In fact Economics as we see today developed mostly after the industrial revolution in Europe, and is completely oblivious to the subtle processes that led to the revolution that was led by technological innovators, visionaries with capable hands, who could turn themselves into successful entrepreneurs. They could 'see' into the future - which products to develop, which technology to tap in order to enhance the human life - leading to a thriving commerce. Human civilization is basically related to the enhancement of the quality of life through viable and sustainable exploitation of our mother earth, and technology is the root to this fundamental human endeavour. In fact even to this day all the big global businesses have been pioneered by technology innovators turned entrepreneurs - Intel, Microsoft, Apple, Hewlett-Packard, IBM, Sony, Ford, Edison, Marconi, Stevenson, Cartwright, Arkright, and the like. Commerce as we see today in the form of Trade houses, Banks, Share markets and the like are simply fallouts and beneficiaries of the business that grew because of technology based ventures.

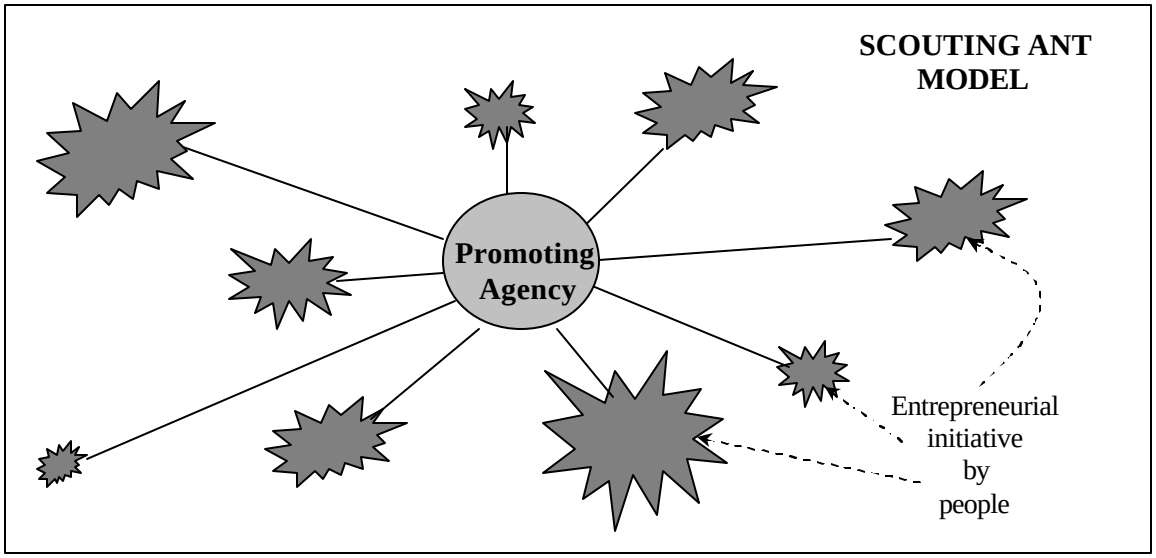
Unfortunately, the so called Third World which fell back in technical innovation and industrial growth was being guided in the last half century, and still is, by policies based on this post-industrial economics which 'missed' the real ingredients of development. Besides, the people behind these policies do have very little appreciation of technology, more so in the Third World. Thus technologists, the real 'drivers' of development have been pushed to the backseat, while they should have been at the 'wheels'. This has been aggravated by an abnormal situation persisting in most of the Third World in the last centuries, a history of colonisation by foreign powers that tried to destroy the inherent capabilities of the native people, in order to exploit all resources to their own benefit. The post independence leaders in these countries, are still under the 'spell' of the colonial period, in fact in many cases the 'spell' has increased in degree and deed as it favours the self-interests of new elitist groups created by a political system which, in the name of 'people-power' or 'democracy', essentially replaced the colonial masters. Thus a sub-conscious self-interest pervades all policy making that universally have a top down approach in these countries, and the dividends naturally go mostly to people who make the policies and their allies, and to those related to the Government machinery in some way. The common people remain off the picture resulting in perennial deprivation, which they learn to accept as 'fate'. They also learn to keep off the ways of any petty agents or representatives of the elitist Government since such agents can wield 'infinite powers' to seal the fate of any simple common folk, who make easy targets for any 'lust' or 'desire' that these agents may conceive of at any moment.

It has to be remembered that any development programme should aim at giving the common people power to be in command of their own destiny, through the use of their own intellects, skills and resources, and not to remain dependent on anybody else for their basic survival.

1.3 Proposing a "Scouting Ant Model" for development

The above analysis answers the question why the large informal sector is reluctant in getting registered in Bangladesh to some extent. Therefore it is imperative that we change our mindset

and address the development issues from a pro-people approach, even if it needs bending or breaking traditional concepts or policies. The author proposes a "Scouting Ant Model" for development. Here the Government will not presuppose any booster sector, nor will it pre-fix any special policy support. Like scouting ants, the Government machinery including the Banks and other Business Development Services will have scouts who will search for entrepreneurial activity within the people. If they come across an activity which has already shown some success and can be justified to have a potential, then the entrepreneurs will be given support, in whichever form that arises out of a intimate interaction with these entrepreneurs. At present the entrepreneurs have to come to institutions, while in the proposed scheme, institutions have to



go to the potential recipients. Clustering of a particular type of enterprise in a geographical area is a good indicator of success, however, this should not be the only criterion. Even individuals may have a potential to bring about a large change to the national scenario. Most of the successful clusters of small enterprise that we see today were once started by visionary individuals.

1.4 How the colonial past created an anti-industry mindset

With regards to the specific history of industries in Bangladesh, it was a land where artisans once prospered and in fact outnumbered the people devoted to agriculture. This indicates the intelligence, capability and skill of the people which is needed for proliferation of enterprises. During the colonial rule every effort was made to discourage and destroy the thriving textile and other industries in Bengal, and to introduce and promote British products. The eminent personality and leader of India, Jawaharlal Nehru writes in his book, The Discovery of India[1] (p.298), *"To begin with, Indian goods were excluded from Britain by legislation, and as the East India Company held a monopoly in the Indian export business, this exclusion influenced other foreign markets also. This was followed by vigorous attempts to restrict and crush Indian manufacturers by various measures and internal duties which prevented the flow of Indian goods within the country itself. British goods meanwhile had free entry. The Indian textile industry collapsed, affecting vast numbers of weavers and artisans. The process was rapid in Bengal and Bihar, elsewhere it spread gradually with the expansion of British rule and the building of railways."* To prevent the local people from acquiring new technology and improve the local industry the British took all necessary measures. Nehru continues, *"Machinery could not be imported into India. A vacuum was created which could only be filled by British goods,*

[1] Jawaharlal Nehru, The Discovery of India, published by Jawaharlal Nehru Memorial Fund and distributed by Oxford University Press, India (written 1944, first published, 1946).

and which led to rapidly increased unemployment and poverty. The classic type of modern colonial economy was built up, India becoming an agricultural colony of industrial England, supplying raw materials and providing markets for England's industrial goods."

Doomed to extinction under such antagonistic environment it can be guessed that the local entrepreneurs naturally had to take recourse to tax dodging occasionally in order to survive. Apparently such practices were dealt with heavily, branding the tax-dodging entrepreneurs as 'criminals'. Human social instincts always supported setting up of enterprises by individuals which allowed others to procure and use clever artifacts or gadgets made by such inventive individuals, thereby enhancing the general quality of life in the society. No one saw anything wrong in such endeavours, indeed it should never be. On the other hand the above mentioned branding of such artisans as 'criminal tax-dodgers' contradicted with this basic human instinct and justification. Therefore, instead of simply bowing down to the desires of the colonial Government, people continued with this persistent struggle to initiate and set up enterprises. This opened up opportunities of corruption by individuals wielding the 'authority' of the ruling power – the tax collector, the policeman, even the petty 'chowkidar' (village guard). In course of time, this created a situation where the entrepreneurs had to play 'cat and mouse' with such representatives of the Government making them reluctant to register with any Government network and turning them into perennial 'fugitives'. Thus people who were artisans and entrepreneurs were scared to a point that even now, in setting up a small enterprise using one's ingenuity and skill, one is haunted by the thought that probably he is committing a 'crime', the 'chowkidar', the police or the tax collector is going to catch him at every opportunity.

The administration that replaced the colonial power after independence simply continued with the legacy and there was no attempt to alleviate the above mentioned 'fright'. Rather in some cases, it got intensified. This 'scare' which existed among the simple common folks was not felt or understood by people who formed part of the new administration of the 'free' Government. By business, the only enterprises that they could 'see' were the 'elite ones', traders of imported items, who could utilize the opportunities provided by the newly gained 'political independence'. Thus traders yielded a large influence on the fiscal policies, which were naturally, never industry friendly. However, with time some rich traders turned towards industry and a few enterprises came up, but these were all set up with entirely foreign technology and production process, in the form of turn-key projects with no scope of utilizing indigenous intellectual capability. The only role of the local people was either in management, or in providing manual labour. Such industrial ventures could provide employment to a few locals, a negligible number compared to the total population, but could not provide the much needed succour for the majority of the people who are to be employed to be fed, who have the basic urge to earn their own living, to survive with dignity utilizing their own intellects.

It would be unfair to say that policies were always that bad. Bangladesh Small and Cottage Industries Corporation (BSCIC) was there to promote this sector. However, the support waxed and waned depending on individual visions of persons in leadership and authority, and influence of competitive interest groups such as importers and traders of foreign products. Over the years, this organization has not received the priority that it was supposed to get in a country like Bangladesh. Recently, International Development Agencies realized the importance of Small and Medium Scale Enterprises (SME) and through their initiatives the Government is also taking up renewed interest in these sectors. However, the author feels that in the context of Bangladesh, 'Small' and the 'Smallest' rather than the 'Medium' industries need attention. Besides, the mindset needed for development of Small industries still do not exist among majority of bureaucrats and policymakers of the Government, and adequate attention needs to be given to this aspect by analyzing and expanding the scenario and presenting logical justifications.

From the introduction given above it is easy to guess that the prevailing political and social environment has not been friendly at all to small industries so far in our country. Therefore judging the potentials solely from the present numbers and past growth would not do justice to the inherent strength of this sector. Therefore, it is felt that this paper should give due cognizance to these environmental issues, not only to pure numbers and statistics. We need to consider the 'Small' industry sector in Bangladesh still as a 'baby'. It is foolish to ask a baby how many miles it can run, or how much weight it can shoulder. We have to make intelligent guesses from other 'adults', nations around the world, particularly in the neighbourhood who are ahead of us, and from the looks or gestures that the baby makes. That is the core view of the present paper. It is the development of the people that we are up to. The immense possibilities and the potentials of the common people should not be held down by the inadequacies of a system of assessment which is inherently incomplete, limited and inadequate. Therefore this paper will include some numbers guessed by intelligent estimates by insiders of the respective sectors in addition to whatever is available from authorized sources. People should be placed before policies, not the other way round. It is no fault of the people that there was no adequate survey to record their contributions. In this sense this paper may well be termed a Development Policy Paper rather than an Economic Policy Paper since recorded numbers will become sidelined effectively by the potentials.

2 Definition – Light Engineering & Electronics

The choice of these specific sectors is due to the pre-assignment of the title itself. Electrical sector is an equally important one and to keep within the assigned title the author has included this sector under light engineering. Keeping within this limit the author presents below his own definition of Light Engineering and Electronics industry sectors.

Light Engineering and Electronics should have a local engineering[2] aspect in the design of a product or in its making, i.e., where indigenous engineering intellect or skill has a contribution. Here only those enterprises will be considered which are manufacturers of some kind, fabricating products which may include finished consumer items, spares of other products, machines to produce other items, or making custom designed items under the respective sectors. Besides, the size of the industry is also a factor. In this paper, ***industries only within the 'Small' sector as defined by the Industrial policy 2005 of the Government of Bangladesh will be considered***. According to this policy, manufacturing enterprises having a fixed investment under Tk.1.5 crore (Tk. 15 million), excluding land and buildings, are considered Small. First of all a definition of the two sectors in the heading and assumed restrictions in terms of the definition are in order.

2.1 Light Engineering manufacturing enterprises will be defined as follows:

- Those that produce mechanical products - a machine or a part of it, or gadgets that use working, machining and finishing processes on metal, plastic and wood, but will exclude wooden furniture.
- Enterprises producing metal or plastic products through a moulding or casting process only without any other machining steps will not be considered. Thus plastic moulded utensils or furnitures are not Light Engineering products, but plastic moulded cabinets for electrical or electronic equipment that need extra processing steps are. Again, aluminium utensils made through a spun technology only will not be considered under

[2] Locally Engineered Products (LEP) – coined by Prof. Wahiduddin Mahmud, Professor of Economics, Dhaka University, & Advisor, an erstwhile Caretaker Government of Bangladesh.

this heading, but non-sticky utensils or pressure cookers having further processing will be included.

- This heading will also include enterprises producing electrical items as a sub-sector, but those containing significant contribution of electronics will be considered under the separate heading of Electronics. Ideally it would have been better if Electrical sub-sector could be defined as a separate sector on its own right.

2.2 Electronic manufacturing enterprises will be defined as follows.

- Those that assemble or manufacture electronic products or components of any kind.
- Processes that require only screw-driver fixing of ready-made modular sections of electronic circuit boards will not be considered as manufacturing as the contribution of local engineering is very insignificant. Rather these would be termed as service since the process is a sort of installation. Thus assembling computers or DVD players using ready-made modules will fall under this 'service' category, not manufacturing.
- To be considered as an electronic product manufacturer an enterprise has to perform at least stuffing of components on a Printed Circuit Board (PCB), carry out the required soldering steps, and perform the final interconnections of the various parts and fittings.
- Enterprises making components, PCB's and cabinets of electronic products will also be considered under this heading. Thus manufacturers of small transformers, metallic and plastic cabinets of electronic items, knobs, special switches, relays, etc. solely to supply the electronic sector will be considered under this heading.
- Again, products in which electronic circuitry forms only a small and insignificant component of the whole in terms of cost will not be considered as electronic products. Thus substation power transformers and control equipment, Industrial Voltage stabilizers, washing machines, etc. will not be considered under this heading even though a small electronic circuit may be a vital part of the whole device. Rather these whole products will be placed in the Electrical subsector as defined above. In such cases, the electronic circuit is mostly manufactured by another enterprise, which will definitely fall under the electronic category. Since there are no manufacturers of essential electronic components like semiconductor devices, resistors, capacitors, etc. in Bangladesh at present, these have not been mentioned. However, even if these are set up, most will be beyond the 'Small' range because such industries need huge investments.

3 Characteristics and Importance of the sectors

a. Enhancement of the quality of life

Enhancement of the quality of life of the common people should be the first priority of any national Government. This is never possible without acquisition of technology by its own people, and the Light Engineering and Electronics sectors dealt with in this paper are the most important ones. Together with agriculture they form the backbones of any human society. The Governments in the Third World should realize that technologies if imported, come at a great cost and need lots of support logistics to be useful and to sustain. It is virtually impossible to carry the benefits of these technologies to the common people in a poor economy. An example is the plough. Improved metallic ploughs, or fuel powered tractors or power tillers are almost ancient in many developed countries, going about for more than hundred years, but these have not made a debut in majority of Bangladesh fields as yet, as in many Third World countries. Majority of village homes will be without electricity for decades to come, may be for another century, while the developed countries have been using them since a century earlier.

Repair and maintenance of foreign technological products tend to be increasingly difficult with increasing incorporation of knowledge-based technologies. This practically results in wastage of precious resources, in throwing out products and apparatus long before their designated usable life, and purchasing new ones again. Technological products that survive decades of use in the richer and industrially developed countries, often become out of order and abandoned in a poor third world country hardly a few years into their use, a luxury not befitting the party concerned. Sometimes apparatus become out of order and are thrown out even before they are put to use! The situation is even worse for specialized products like health care equipment where the costs of procurement and maintenance are astronomically high, which restrict the use to only a few percent of the population. Very few district towns in Bangladesh will have a working ECG or X-ray equipment, two basic and important health care equipment, even to this day about a hundred years after their discovery.

The political, social and economic policies that exist globally at present are depriving the common people their basic rights to quality living, limiting the benefits of modern science and technology to a minority of the world population, and, to only a few percent of the people in the Third World. This increasing gap in the quality of life between the rich and the poor will naturally lead to an unpalatable scenario, leading to political unrest and possibly, terrorism, which will not even spare the privileged few. The Nobel laureate poet Rabindranath Tagore spelled it out clearly about a century back in his famous lines, English rendition of which is, according to the present author, ***"You will have to equal in humility and disgrace to those, whomsoever you have humbled"***.

Therefore enhancement of the quality of life of the majority population should be the prime consideration of any development programme and this can only be achieved if locally engineered light engineering and electronics goods industry is promoted for proliferation.

b. Poverty alleviation and creation of employment

Much is said on poverty alleviation these days but the priority often goes to exploitation of cheap labour or giving special grants for the very poor. It needs to be understood that exploitation of cheap labour may be a short term priority when a society is at the brink of survival, but this never leads to long term and sustained poverty alleviation. Again, giving grants or subsidies only creates opportunists who grab most of the fund. Besides, these take away the self-respect of individuals, making them perpetual beggars, robbing them of the motivation for self-help. A nation has to aim towards self help of its millions of members through creating a free and uninhibited environment where the people can utilize their own intellects and skill to grow their food and to produce the accessories that they need to enhance the quality of life. This is only possible through acquisition of technology indigenously, and building up gradually on this foundation. In Bangladesh the common rural people has very efficiently acquired the basic technology needed for agriculture, and they have been provided with a free environment through withdrawal of agricultural taxes. These have been the main reasons that this country has been saved from any large-scale famine so far. To take the next leap the common people have to acquire technology needed to set up small industrial units. Enterprises having the capability of own innovation can develop products that suit the local market, commercialization of which at affordable price leads to large scale use and enhancement of the quality of life of the common people, which in turn allows more enterprises of such nature to be set up, leading to a hectic economic growth, and naturally to the much heralded poverty alleviation. Light Engineering and Electronics are the right sectors to this end

Small industries also provide the largest means of employment at minimum cost to Government. In India between 1991 and 1998 about 42 lakh employment was created through small enterprises, while the number created through large and medium enterprises and the

Government together was only 14 lakh in the same period. Therefore, if we really want sustained poverty alleviation and large scale employment, we have to concentrate on small industries in the Light Engineering and Electronics sector with great urgency.

c. Technopreneur – the driving force behind small industry

Such enterprises usually begin with the effort of a technology innovator who turns himself into an entrepreneur – a 'Technopreneur'. Some experienced and innovative employees of this enterprise will later break away setting up new enterprises. Soon a large number of small manufacturing enterprises grow, sometimes in geographical clusters, creating networks of both backward and forward linkages and creating employment for a large number of people. This is the natural way that an industrial revolution takes place, the way that new entrepreneurs are trained, and one has to appreciate this process while forming any policies for promotion of enterprises.

Because modern development is another name of technological development and only a technology expert innovator has the vision and the expertise to lead this arena. If we look back a little, Ford, Edison, Marconi all were technolgy innovators who created and lead the business as well. Had they not became entrepreneurs themselves, the world would still be leaving without them, without cars, without electrical lamps and radios. Modern global businesses like Intel, Microsoft, IBM, HP, Sony - all were initiated by technical innovators - and all of them started 'small'.

In this scenario market leaders will always be the technology innovators who can rightly conceive of newer products based on the demands of the society around them and have the capability of making these items from scratch using available resources. Such products will simply be copied later by most of the break-away entrepreneurs, but this will in turn create a large market demand and scope for more enterprises to grow. Besides, this situation, if not inhibited or obstructed by Government policies, more and more creative innovators will come to this sector bringing in their innovation of newer products, that ultimately may lead to an industrial revolution.

Therefore while drawing out programmes for promoting small industry in light engineering and electronics with limited resources, such technical and entrepreneurial capability both should be taken into account and given preference, rather than promoting the less innovative ones. This will also ensure minimum risk with any fund dedicated for this purpose. If we can promote the 'technopreneur' leaders and allow them to flourish, followers will automatically be created. We have seen this happen in Bangladesh as well, and some case studies will highlight such stories later in the paper.

d. 'Economics' is unable to handle industrial small sectors in the Third World

Unfortunately economics never understands the basic processes leading to an industrial revolution as briefly outlined above. Philosophies behind this subject do not 'see', or 'recognize' the vast majority of people in the Third World who fall below the poverty line, a threshold below which economic theories cease to function. The specialists of this subject can just 'hope' that such poor people will come out of their poverty 'somehow'. They do not have any specific theory or proposition to bring such people out of poverty. The only proposals that they come out with for the poor are 'grants' and 'subsidies' which are not the right approaches at all as discussed before.

e. What these sectors need

Poor people in the Third World do not want grants, what they want is an uninhibited and unobstructed environment where they can 'innovate' and grow, can produce and compete, and earn their own living. Basically what they need is that the Government should not pose as obstacles to their growth through either through policies, or through harassments of corrupt Government officials. They also need a level playing ground for competition with imported products whose control is absolutely in the hands of the national Government in the present age. If the Government wants to provide any support, this should be mainly through education in modern technology, and facilities to procure machines and raw materials if these are not available locally. Funds as loans are not a priority at all for the small sector.

f. Indigenous Technology, not imported

When we talk of quality of life enhancement using technological inputs, improvement in the systems of home lighting, cooking, sanitation, provision of pure drinking water, modern health care, etc. should be the starters leading eventually to communication, entertainment and other amenities that the city based people are used to. The other sector is agriculture, or the industry itself, where technology inputs are needed to improvise suitable gadgets or appliances for enhancing the applicability or the outputs of the processes involved. An improved plough, power tiller, a thrashing machine, a water pump, rural automotive vehicles, concrete mixer, equipment needed in poultry and dairy, power-loom, electricity generator, etc., eventually going over to higher and higher technology machinery and products are the items one has to consider.

Often Governments in the Third World tend to get overwhelmed by superior technology of the industrially developed countries and commit a great deal of time, money and labour in procuring them direct, either through local or foreign investment instead of developing the capability indigenously. This may be right for medium and large industries as there are no other options, but not so for the small sector. In fact sometimes policies to facilitate such foreign technology based investment pose as formidable obstacles to indigenous efforts in the acquisition of related technological capabilities and their commercialisation. In the small sector the entire focus should be on acquisition and development of indigenous technology. Necessary support from the nation is also needed in promoting the use of locally made engineering products.

Human development in a sense is the use of natural resources for the benefit of mankind through technological innovation. Unfortunately, being non-technologists, the policymakers in either the Third World or the International Development Agencies cannot comprehend or 'visualise' this natural growth process, which is at the roots of all social development. So the common tendencies are to import such technology from the industrially developed countries, or to engage experts in those countries to seek out technology based solutions for the Third World. That this is a wrong approach can be easily established. *Firstly*, an imported technology or an imported product is prohibitively expensive in a Third World simply due to an income disparity, since the cost of human resource is very high in the industrially developed nations. *Secondly*, with regards to develop technologies for the Third World, a foreigner does know very little about the burning problems of the target area, which may vary from village to village again. *Thirdly*, the solution has to use materials easily available in the locality so that it can be replicated for its widespread use, and be affordable to the target population. *Fourthly*, the technology should be well within the reach of the technically knowledgeable people in the target area so that they can be easily trained to replicate the gadgets in a small production unit. They should be able to repair the items easily in case of a breakdown, and spares should be available widely. *Fifthly*, the design of the products should suit individual cultures and tastes to

be successful in the market. Thus there are a host of factors which go into the design of a product and its successful launching into a market which needs intimate familiarization with the indigenous people, and which would be impossible for a foreigner. Therefore, technologies for such products and processes should be home grown or acquired, by the technically oriented people in the country itself. Fortunately, every country, through some modern education, has knowledgeable and trained manpower who can be wooed into challenges like this through suitable national policies and incentives.

g. Home market first – to accelerate growth

Small industry has two aspects – making articles for distant and rich consumers, may be in the rich developed countries or in the richer sections of the same country giving an immediate sumptuous return to the entrepreneurs, the other is to make articles that can be used by the indigenous people themselves in order to enhance their quality of life.

In the former, the product design often has to come from the remote market itself which is entirely unknown and unfamiliar to the entrepreneurs making the product. Thus the entrepreneurs have to depend entirely on middlemen, who have to furnish appropriate technology training, product design and raw materials on one hand, and to market the products on the other. Here the manufacturing entrepreneurs cannot use their own innovation or intellectual capacity in designing a product for the remote market, with which they have little interaction and familiarisation, and cannot modify a design in case there is a change in the market scenario. If the market veers they may have to shut down completely unless the middlemen takes an interest in retraining them and provide them with the necessary support, which is unlikely, simple due to economic reasons. The middlemen would switch to a new country or region which is better prepared to address to this changed market situation. There cannot be any natural horizontal expansion that such an engineering entrepreneurship is expected to result in. Therefore, export only targets do not lead to large-scale growth of small industries and sustained poverty alleviation.

On the other hand if home market, meaning the market around the producer's own community is made the target, then all the desirable characteristics of small industries can be seen to happen. An entrepreneur can make modified designs of a product, or even make completely new products through own innovation since he is familiar with the demands well. This allows an entrepreneur to withstand changes in the market demand quickly, to survive, and to grow. Therefore home market should be given the foremost priority for the small engineering product based industry.

h. Expanding the results of micro-credit

Micro-credit has made a great impact in Bangladesh, its birthplace, bringing about 10% of the whole population (and claiming about 70% of the rural poor) under its net[3] through an effort spanning over about three decades. However, the degree of poverty reduction is rather slow, and there is limited enhancement in the quality of life, limited again to only the household of the borrower. The poorest, again, remain out of bounds. The enhancement relates to nutritional status and education of the borrowers only. How could this be enhanced further? The author feels that the next enhancement in the quality of life needs the use of gadgets and devices with innovative technological inputs, and which in turn needs technology based entrepreneurship to spread the benefits to a wider population[4]. Such enterprises can employ the poorest on one hand, while invigorating an economic activity which will eradicate poverty at a rate much

[3] Praful C Patel,(South Asia Regional Vice President, the World Bank), *Micro-credit: the way forward*, Daily Star, Jan 22, 2006

[4] K S Rabbani, Microenterprise and cheap labour, Daily Star, 'Letters to the Editor', February 18, 2004

higher than that achieved with micro-credit alone. In fact the author feels that without inputs from technology, micro-credit will soon reach an insurmountable wall, with no further progress. Therefore, Light Engineering and Electronics sectors, which form the main technology based entrepreneurial sectors for Bangladesh and the Third World, will extend the fruits of micro-credit to newer heights.

i. National development

There are many aspects of national development, but a fundamental one is to provide each citizen with work through which everybody can earn one's own living. Each citizen should be able to lead a life with dignity, where he or she is equal to every other person. Every citizen should have equal opportunity to basic needs of food, clothing, housing, health and education. The world has been pursuing many models over the last centuries, but none has produced success so far. Rather with every new idea and action, the disparity is widening between the rich and the poor countries globally, and between the rich and the poor within one country. ***Two main reasons are, in the opinion of the author, faulty models of political governance, and inadequacy of economic theories, both of which have failed to appreciate the workings of the human mind and the workings of the human society.*** However, these are beyond the scope of this paper and here the role of Light Engineering and Electronics industries only will be discussed. Even under the above mentioned faulty systems, if the common people are given a 'free' environment to develop their technological capabilities, and to set up technology based enterprises without any inhibition, this will rejuvenate an economic growth and enhance the quality of life as discussed before. Such growth will naturally provide for the necessities mentioned above for the masses, which are the goals of national development. We have to realize and admit that the much heralded 'Trickle-down" theory does not work. We need to understand that every individual needs to use one's own intellect to develop oneself, a free environment to work and blossom, to come out of poverty. As mentioned before, just exploiting cheap labour for export oriented projects may give them some immediate financial relief, but will never provide them with the tools to come out of long term poverty. We need to understand that gathering the wealth of a nation and placing them at the hands of a few large entrepreneurs investing in gigantic projects, or investing in projects that are for export only, never have worked in alleviating poverty in the Third World. Rather it always contributed to a growing disparity which in the long run will simply backfire, leaving nobody to have a peaceful life. Therefore promoting technological enterprises in the small sector, particularly in Light Engineering and Electronics will contribute greatly in national development.

j. University-industry collaboration, technology progression

When enterprises with home grown technology proliferates, competition increases, thereby creating demands for improved and newer products and processes. This may call for further research and development (R&D) beyond the in-house capability of an enterprise, when it turns to experts. The enterprise also acquires adequate funds to pay for such services at this stage. This then leads to the much desired University-Industry collaboration. Without home grown technology in the industry such collaboration never takes place. Again Light Engineering and Electronics sectors are the ones that have the most possibility of such collaboration in a country like Bangladesh.

By setting up industries based on fully imported technology on turn-key basis, we have waited for a long time to see University-Industry collaboration to develop, but it has never happened as there is no scope for indigenous problem solving research in such industries.

k. Self confidence & prestige

With a proliferation of home grown technology based enterprise in Light Engineering and Electronics, the local enterprises can supply many items that people need, whether in villages, or in cities. The economy gets a boost through widespread participation. With the product quality improving from customer feedback and in-house R&D, entrepreneurs dare to venture out, and export builds up as well. Obviously this leads to a national self-confidence and prestige which is very essential in solving other problems of a country and in taking it to greater heights.

l. World Retrospective - Small industries form the backbone of a nation

In all the industrially developed countries a slogan is still in vogue, "Small Industries form the backbone of a nation". All the above facts combined point to the importance of this sector and this still holds good for us. Unfortunately this slogan has not yet made a mark in countries like ours, and we should try to make this slogan popular as quickly as possible.

4. Bangladesh Scenario

4.1 Historical perspective

If we go back to the period after the British left, i.e., the erstwhile Pakistan era, we can see that the whole process of industrialization was planned in the model of the present situation of the industrialized countries, without an attempt to understand the processes that led to the present stage of development. Everything had a top down approach. It was thought that setting up large industries would create a network of small industries through backward linkage, and there would be R&D at Universities resulting in University-Industry collaboration, and so on. Pakistan Council of Scientific and Industrial Research (PCSIR) was set up specially to promote industrial research and a number of other organizations were established with Government initiative in order to promote engineering based industry. Some privately owned enterprises were set up like Philips (multinational), Mehar and Fecto for assembling electronic products, mainly Radio and Television. A car assembly plant (Volvo) and a motor cycle assembly plant (Atlas-Honda) were also set up with foreign technology. Foreign investment was wooed to set up industry under turn-key projects. The idea was that they would gradually go into basic component production, and promote a backward linkage in the country. Decades went by, and nothing such happened, virtually no local technology based industry could establish itself, there was no University-industry collaboration, nor was there any backward linkage. Bangladesh became fully independent more than thirty years back, and similar policies thrived. The same organizations continued with only changes in the prefixes to represent the name of the new country; BCSIR replacing PCSIR, and so on. No one looked deeper into the reasons for failure, and naturally again, nothing happened.

It was thought that establishing capital intensive facilities with Government support will initiate a change. Bangladesh Industrial Technical Assistance Centre (BITAC), Bangladesh Machine Tools Factory (BMTF), General Electric Manufacturing Plant (GEM Plant) and Telephone Shilpo Sangstha (TSS), all were set up under Government initiative with this aim. Unfortunately, none of these establishments could create the desired momentum in the engineering industry sector, some of these are now closed, others pulling along somehow.

4.2 Supportive policies in the eighties through BSCIC

Though there was an attempt to promote small and cottage industries through Bangladesh Small and Cottage Industries Corporation (BSCIC), the role of this organization waxed and waned at periods, remaining mostly at the sidelines of Government interest. The public image of this organization still rotates mostly around petty handicraft-like cottage industry although it worked

for the promotion of engineering based industry as well. In the eighties BSCIC was stirred up with some fresh vigour to provide support to engineering based small industry together with necessary banking support. The following are some of the favourable policies of the Government in the eighties.

1. **No permission form any authority is necessary to set up an industry (Industrial Policy, 1986).** This deregulatory policy was probably the most significant one that helped boost small industries, the author feels.
2. **A subcontracting arrangement** was worked out through which small workshops could supply necessary spares to textile, jute, railway, gas and other sectors controlled by Government or Semi-Government bodies, getting a preferential treatment.
3. **Tax and Tariff protection** was given to many local industries to enable them to compete favourably against import of similar products.
4. **A preferential treatment to local industries** were given in procurement policies of Government or Semi-Government bodies. These were supposed to procure local products if these were of adequate quality, even if the quoted price was 15 to 20% greater than the quoted lowest price of a similar imported product.

The first one of the above still holds, but with passage of time the other three policies were quietly forgotten, or were made to fail by twisting the implementation methodologies in certain sectors, possibly at the initiatives of vested interest groups.

5. Potentials and Case Studies

5.1 Light Engineering - *Category and products*

Light Engineering Enterprises may be divided into two major categories:

i) An industry manufacturing some sort of product, either for the direct consumer, or spares for another machinery, and sold through a marketing system.
ii) A workshop making items on customer demand.

Enterprises of the first category include producers of heavy industrial machinery (plastic moulding machines, Lathe machine, candy machine, tablet blister packing machine, water softener, etc.), machinery for garments industry (Fabric inspection machine, washing machine, steam generator, etc.), Textile machinery (power loom), Construction machinery (concrete mixer machines, brick crusher, roof wheyst, etc.), metallic furnitures (Almirah, cubboard, beds, chairs, tables, hospital beds, etc.), Agricultural machinery (Seeder, rice planter, Rice husking machine, sprayer, etc.), Three wheeler automobiles (Mishuk, Bhatbhatia, Grameen Autovan), Automobile spares (crank shafts, brake drum, gear, piston piston-ring, filters, silencer, bumper, bus-body, bus-seats, etc.), Automobile service (air compressor), Railway items (Steel sleepers, signals, bodies of railway coaches, etc.), Pedal powered vehicles (Bicycles, Rickshaw, and parts), shipbuilding, Spares for Jute and Textile machinery, Domestic appliances (electric fans, water heaters, bathroom fittings, gas fittings, gas burners, LPG cylinders, light fittings, electric distribution boards, etc.), Electrical distribution apparatus (Transformers, switch-gear, control panel, etc.). A list of such products is available in ***Annexure-1.***

Enterprises of the second category include Mild steel grill making, which use simple cutting tools and welding to do the job, and customer designed spares for automotive and industrial use, which are made in workshops equipped with machinery like Lathe machine, Drill machine, Milling machine, Shaper tool, etc.

Just after the independence of Bangladesh in 1971 many initiatives were seen, as there was a vacuum in the supply situation. 'Jinjira', separated from Dhaka city by the river Buriganga became famous for producing counterfeit products and buzzed with activity. Later 'Dholai Khal' area of Dhaka became the seat of spare making. Some streets of old Dhaka like 'Tipu Sultan Road' were famous with concentrations of heavy and light workshops. People also ventured into sophisticated products. Prototypes were exhibited of indigenously made sewing machines, embroidery machines, cinema projectors, etc. Not all of these could make it successfully into production. Electrical switches, plugs and sockets became big business and clusters of such industries grew around Dhaka city where hundreds of enterprises are producing millions of such items to supply the remote corners of Bangladesh.

5.2 Light Engineering - Case Studies

i) Engine powered boats from irrigation pump engines – widespread ingenuity

Local widespread ingenuity was aptly demonstrated in many examples. In the eighties, Government allowed duty free import of diesel engine driven pumps for irrigation. Local innovative technicians successfully made boat engines using the driving power of these diesel engines. This was almost a silent revolution, not many sail boats are seen nowadays. In the early days there was a move by certain quarters in the Government to stop this innovative practice which they thought was 'misuse' of duty incentives given for irrigation only. However, the Agriculture Minister at that time was a retired army Engineer of high calibre. Being a technologist he could 'foresee' the long term benefit of this innovation and advised the opponents to give a 'blind eye' to this apparent misuse. The present author had the information first hand from the said Minister. This Government attitude helped much in the growth of this local innovation. Later foreign NGO's also provided technical assistance in improving the quality of the indigenous powered boat.

ii) 3-wheeler automobile from irrigation pump engines – ingenuity crushed by Government

A similar initiative took place in road transport subsequently. Clever technicians used the same diesel engines of the water pumps to provide the driving power of a three-wheel vehicle, made with a majority of locally made parts. The wheelbase was made by pressing steel sheets using homegrown process technology. The chassis, Steering handlebar, brake-drum, almost everything except the engine were made locally which brought the cost significantly down. Such vehicles could provide cheap transport for poor rural people. However, on demands from competing bus owners who were influential too, and putting a blame that these vehicles were not technically fit and caused accidents, the Government first put a ban on these vehicles from plying in the highways, and within a short time put a full scale ban on any road thus sealing the doom of the initiative. Strangely enough many influential newspapers also campaigned against this locally made vehicles. However, the vehicles can still be seen in certain areas of the country, made possible through bribing the local law enforcing agents. Actually due to such antagonistic attitude of the Government properly trained drivers do not drive these vehicles. These are driven mostly by teenagers, which can partly explain the cause of accidents.

While the Government should have been excited seeing the possibility of a local technological innovation and should have provided support to improve the quality, the completely opposite happened, eventually capping a potential local initiative

iii) Approved 3-wheeler automobile – success of lobbying power

Another such venture was given a support by Grameen Bank. With the help of a foreign trained automobile engineer the technology was improved significantly, and different versions of the 3-wheeled vehicle were developed, for carrying passengers, for carrying goods with tipping

facility, etc. However, even after all these improvements and refinements the Government was reluctant to give road permission to these locally made vehicles. After almost four or five years of continued persuasion, and that by the top brass of the world famous Grameen Bank, the Government has given the nod at last recently. Now a manufacturing plant for this indigenous vehicle is on the way in the outskirts of Dhaka.

iv) Indigenous Mini Hydroelectricity – success due to non-competitive character

To continue with the case studies in Bangladesh, a technician indigenously built dams on small rivers in the Chittagong hill tracts area, and designed, made and installed successfully a mini-hydroelectric generator using which he is supplying electrical power to neighbouring villages. In this case he was lucky enough to get Government support, most probably due to the fact that he had no foreign importer or trader as competitor in the remote hill tracts area.

vi) Mechanised brick crusher - too bulky to be imported - allows success of local innovation

Another story is that of a mechanized brick crusher. Even a few years back women and children incessantly chipping bricks manually were a common sight, but no more. An innovative technician saw a foreign made powered brick-crusher at a construction site. He bribed the guard during night-time to see the machine in detail. Soon he came up with his own brick crusher, made in Bangladesh. This has also made a silent revolution. Perhaps why this initiative has not been choked so far is that the cost difference with a similar imported product would be very high, which cannot be brought down even with high taxes on the local production. However, if the market size becomes large, and if some potential trader becomes interested, it would not take long for the table to be turned.

vi) Electrical switches and accessories - formation of cluster - without loan

There is a huge domestic market for electrical switches and accessories. In the eighties an innovator visited some manufacturing units in neighbouring India. He brought back the images in his mind and attempted making the required machinery locally. Eventually he succeeded and started marketing his products. Workers trained in his factory came out and started their own enterprise. Here the original innovator was broad enough to accept such dissidence, instead of opposing them he extended his support to these breakaways. Now there are about 400 such small industries in the outskirts of Dhaka in a close-knit cluster where the author had the opportunity to work as a trainer for a brief period. A significant feature of this cluster is that almost none had taken any loan from any banks to initiate these ventures, they risked their own resources. The author once introduced an innovative entrepreneur, who could grow fast if he had some extra finance, to a micro industry financing organization. Later he found out that the entrepreneur preferred selling some of his lands to getting a loan.

The five industries that the author worked with were very pleased with the training, each of them were handed out an electronic instrument which the author developed himself for quality testing of the produced switches. The author also involved them in some R&D to improve the quality of the switches, plugs, etc., but towards the end the question that the entrepreneurs put forward was that this improvement and the quality control procedure would increase the cost of the product by a few percent, how would they sell the items at this increased cost? All of them sell their products through wholesale agents who distribute the products throughout Bangladesh. These distributers always insist on a minimum price, irrespective of quality. They would not pay, even for this few percent increase in cost for a quality product. When the author suggested to the manufacturers that they can get away with it by participating in exhibitions and advertising the quality of their products through the media, the prompt reply that came was that the customs official would come down the very next day claiming their sales to be much more than the actual value, and that this can only be settled through bribes. In Bangladesh situation it would be a big hassle to establish the truth, and in fact, the time spent in running between

relevant offices and courts will hamper the functioning of the enterprise itself bringing it to a natural shut down. Therefore they would not possibly dare to incorporate the improvements that were achieved during the training.

vii) Otobi – ingenuity and Government support makes a success

An example of a successful innovative enterprise is that of Otobi, initiated surprisingly by Nitun Kundu, a fine art graduate rather than a technology expert. Although in a competitive position he was refused a teaching post in his graduating institute because of internal politics. This led him into being an entrepreneur making commercial art objects like gift items, medals, prize cups, etc. In doing so he had to tackle challenges of metallurgy and machining and needed process facilities not available in Bangladesh at that time. Therefore he developed himself through self-study and visit to similar enterprises in neighbouring countries, innovated indigenous machines to do the jobs, and soon became an expert in the field. In the eighties again, the supportive Government policies allowed him to acquire funds and premises and helped in the sale of his products to Government organizations. A combination of aesthetics and technology innovation gave him an edge with which he grew quickly, making metallic furnitures of original design that were copied soon enough by many newly grown small enterprises. However, Otobi maintains a lead in quality. Otobi was lucky in growing to a size to endure harassments by tax officials before the supportive regime of the eighties dwind led.

viii) Obstacles to a simple innovative entrepreneur, why they close down eventually

An innovative enterprising youth developed the technology for making of special plastic pipes using rejected plastic of medicinal plants. He has very limited funds from his own savings, which he risks in the venture. He finds out that to get an electrical connection he will have to give hefty amounts as bribes, which will simply eat away all the amount he had for investment. So he decides to steal electricity by tapping onto a roadside electricity distribution network by bribing the linesman. He also does not register for tax or VAT payment, as he finds out from seniors that if he does this the customs officials will coerce him regularly for bribes. Being technically capable and innovative he grows rapidly. As he grew, all the offices involved came to know about his factory. The electricity men came, branded him a criminal for stealing electricity, and snapped his line. The gas-men did the same, and the customs people seized all his documents, bills, etc. Soon he was running to and fro between the respective offices and his industry, being able to look after his enterprise less and less, and paying bribes to save himself from being jailed. Soon he puts an end to his enterprise and looks for a petty job elsewhere.

5.3 Inferences from the case studies – Light Engineering sector

a) The presence of a technical person at the decision making level of the Government can make a whole lot of difference – as exemplified in the engine powered boat.
b) Absence of technologists in the decision making level of the Government crushes indigenous innovation – as is the case with the indigenous 3 wheeler automobile.
c) Vested interests can destroy local enterprises easily by influencing Government policies.
d) Items that are difficult to import either due to bulk or high cost are potential candidates for indigenous development by small enterprise – examples being the mini-Hydro and the brick crusher.
e) A single technology innovative entrepreneur can contribute to the development of a whole cluster of small enterprises, therefore such technology leaders should be supported.
f) Funding is not a priority problem for small industry
g) Harassment by tax officials form the major obstacle to the survival and growth of small industries in Bangladesh.

h) There is no priority of small enterprises to any Government institution, particularly to utilities like electricity and gas. This results in illegal acts performed by entrepreneurs.
i) One has to see a small enterprise with compassion. If it has taken some illegal steps, it must be due to an unhealthy environment created by the Government itself. A technology based manufacturing enterprise is an asset to the country. Rather than shutting a successful enterprise of such nature, compassionate steps could bring them under legal folds while allowing continuity of the enterprise.
j) Bangladesh Government had some supportive role to small manufacturing enterprises in the eighties who have now established as leaders. This support dwindled and almost vanished since nineties.

5.4 What Government support can do, a story from neighbouring India

A famous story of the neighbouring country India is relevant at this point. After its independence when Jawaharlal Nehru was its Prime Minister, someone showed him a sample of a razor blade that he made locally. Nehru having a background of science in his undergraduate education instantly visualized the potential and ordered an immediate ban on the import of this product. Files were sent to Nehru saying that this blade is not of quality, one gets cuts and bruises while getting shaved, therefore the import ban should be relaxed. It is said that Nehru wrote back on the files that let the persons who feel disgusted with this blade keep beard, the ban would not be reversed. India's spectacular progress owes almost entirely to Nehru, who having a science background, could visualise the importance of indigenous technology and led the country that way.

The above example establishes one of the main points the author wants to promote – there is no alternative to a person with a technology background at the decision making body of a Government in the Third World.

5.5 Electronics – *category and products*

5.5.1 Categories and Characteristics

Total visibility of all workings has been a characteristic of traditional technologies in mechanical engineering. In electronics the workings are not visible, and knowledge is an important ingredient. However, in Bangladesh people have shown remarkable signs of being at ease with this new technology with a little education and training. Of course people without the necessary knowledge cannot design or develop electronic products from scratch, but electronics has a flexibility that allows various levels of entry. An assembly industry based on packaged kits like that of Television can be set up by almost any one with a little technical background. The subsequent higher levels of entry involve local fabrication of cabinets, transformers or Printed Circuit boards (PCB), design of PCB's, and finally design of the product itself from scratch. This involves conceiving of a new product, designing the electronic circuit itself, developing the circuit and the product to a stage suitable for industrial production, designing layouts for PCB and assembly, designing appropriate cabinets to house the circuits, and finally assembly and quality testing. The knowledge or soft aspect of this technology, i.e., visualising products and designing the required electronic circuits from scratch, has the highest esteem and value-addition, and needs a high level of knowledge and competency. An intermediate level is copying a foreign product. However, even for copying a minimum level of expertise developed through own R&D is needed. Very few countries of the world produce semiconductors or electronic devices that form the core components of the electronic technology as these are very capital intensive and need a supply environment and background not suited to countries like ours. These devices are now widely available and countries like Bangladesh can start at the next higher level of entry. However, some components like transformers, coils etc, which have large unit price and is cost effective even if made in a relatively small scale can be taken up, and it is

there already in Bangladesh. In fact allowing the market to play freely, people will choose the right item at the right time. Forcing these things from Government usually does not result in sustained development.

Fortunately, Bangladesh has a highly talented pool of people with scientific and engineering education in Electronics who have shown great abilities in turning themselves into entrepreneurs. Even non-science graduates have shown significant abilities in designing electronic products purely by dint of their knack, self education, perseverance and practice. Interestingly, many of the electronic industries in our country have been set up by such non-specialised enthusiasts.

One aspect of an indigenous technology based electronic industry is that with the same industrial set up, it can produce varied products. Besides, it can also satisfy specialised customer demands which increase its chances of survival as these demands cannot be met by imported products in many cases. Besides, such local industries can offer a real guarantee of prompt after sales service which is impossible to get from foreign equipment.

The raw materials needed by electronic products are mostly imported. However, the indigenous technology based entrepreneurs have been able to incorporate some local components like transformers and metallic or plastic cabinets which constitute about 30% in a UPS to about 60% in a low power voltage stabilizer. A very good effective **backward linkage** has, thereby, been developed. Of course, the raw materials of these components are again, imported, since Bangladesh does not have any mineral resources to supply such basic raw materials, in fact very few countries of the world do. In fact, a handful of countries of the world produce basic raw materials for the electronic industry like semiconductors, IC's, resistors and capacitors, and they can satisfy the whole of the global demand. Therefore, it is not economically viable to go into the production of such raw materials in a country like Bangladesh, rather making finished products using such imported components offer the better and appropriate alternative. It is the value addition due to intellectual capacity, process and manual skills that contribute to the product eventually, and which are the main driving forces of the industry.

The types of electronic industry possible in any country are summarized and listed below, from high to low levels of entry.

1. Making of finished product
   a) Assembly from foreign made kits
   b) Manufacture using mixed local/foreign technology
   c) Totally indigenous technology & assembly
2. Cabinet manufacture
3. PCB design and manufacture
4. IC Packaging
5. IC layout design
6. Basic components

Among the above, the investment needed is in inverse proportion to the level of entry, the higher the level lower is the investment. In Bangladesh context item 1 is the appropriate level of entry, and we have to move down the list gradually. The feasibility of this has already been demonstrated by success of private initiatives in this manner since the seventies and eighties while Government initiatives to go the other way, i.e. to begin at the bottom and go up the ladder failed. Item 1a once flourished and in fact was responsible to make television affordable to common people because of which a large domestic market has been created. However, due to

wrong policies of the Government in 2002 and in 2004 this industry has been almost completely destroyed.

With the entry of technology innovators in this industry, items 1b and 1c have already taken root, which started in the eighties. These activities also introduced items 2 and 3 using indigenous capability, but much higher investments are needed to make them of international quality and standards. This again is related to the demand, to the size of domestic production of items 1b and 1c. Therefore it is essential that items 1b and 1c flourish. Unfortunately our Government policies since late nineties have gone against the domestic electronics production virtually choking this industry. Unless quick remedial actions are taken the ones that still survive today will be lost soon and it will need a long time to make a come back.

The items under heading 1 above are described briefly below.

1a. Assembly of foreign made kits

Most of the electronic industries in Bangladesh in the last decades were of this category producing widely used consumer items like Radio, Television, Cassette recorders, etc. A packaged kit contains all components, down to the last screw, in a completely knocked down (CKD) condition, to make a finished product following precise instructions provided. These are almost universally based on technology developed abroad. Though such assembly work does not contribute much to development of indigenous technology, this can offer the products to the domestic consumers at a low cost, can produce a good management experience and can give employment to a large number of skilled workers, particularly females. This was also the case in Bangladesh a few years back, but unfortunately, adverse import tax policies of the Government, taken in 2002 and 2004 as mentioned before, have virtually destroyed this industry.

There are some enterprises which even do not solder the components. They just connect different ready-made modules, which is basically screw driver work. This happens with VCR's, VCP's, DVD's and Computers. These are more of installation work rather than assembly, and we would not call them industries as such.

1b. Manufacture using mixed local / foreign technology

Most of the entrepreneurs in the Electronics sector in Bangladesh who had some capabilities of own R&D and own technology opted for this scheme. The basic electronic technology in the form of an electronic circuit design is usually brought from outside, or copied from an existing foreign product, or copied from a book of circuits. The PCB, cabinet and the circuit layout are designed locally incorporating local components like transformers. Through such methods one is able to promote integration of local technology with relatively less risk, as the basic electronic technology has already been developed and tested abroad and is expected to function without much problem.

To adapt the product to local conditions well, some modification in the circuit design are also done and the whole exercise needs some basic knowledge of electronic technology. Voltage Stabilisers, UPS, IPS, Emergency lights, etc. were introduced into the market by such enterprises since the eighties and were accepted well by the market. The reason that such local products have became popular is that the consumers get the products at low cost besides a reasonable guarantee and good after sales service, which are usually not the case for imported products. Besides, the local products are better suited to our climates and situations, the required adaptations being brought about by indigenous engineering skills. A network

(backward linkage) of supporting industries making transformers, cabinets, etc. has also been established through such efforts.

The reason this type of enterprises flourished is that a technical innovator with a relatively low level of knowledge in electronics can make an entry. The weak point of such an enterprise is that the electronic technology is still not acquired, the manufacturer may be producing an item without understanding all the intricate details of the circuitry. So if faced with a difficult problem, they cannot solve it, nor they can introduce a new product to the market.

1c. Totally indigenous technology & assembly

This is the ultimate level where a good knowledge in electronics circuit development and the necessary skill to transform it into a commercial product is needed. The necessary electronic circuit is designed from scratch, prototype made, tested and re-tested under different envisaged conditions, and finally approved for production. Next comes designing a suitable cabinet for housing the equipment which must be decent to look at, at the same time be user friendly in handling and control, which is no less a challenge. This is the interface of the technology to the user and designing a cabinet needs a very good understanding of human behaviour, psychology and culture. The challenge is multiplied in Bangladesh due to limitations of infrastructure and the lack of availability of necessary raw materials and process facilities. After a prototype is ready it needs to go through a limited marketing exercise to see the viability of the product and its capability of withstanding field conditions. Usually equipment developed from scratch need modifications and improvement through further R&D at this stage since it is virtually impossible for any designer to envisage all the practical situations the product will face in the field. A field trial poses the most difficult challenge as a new circuit designed, fabricated and tested under fixed conditions in a laboratory can easily fail when used outside under various environments and conditions, and by people of different backgrounds and habits. Acceptance by the people is also to be judged in the case of an innovative product which was not in the marketplace before, and no market survey can give the right answer for its viability. It is the hunch of the designer and a committed marketing that are needed to make a product a success. Only after success is achieved in such field trials, can a product be sequentially taken up for small, and then, medium scale manufacture. At every stage continuous R&D is necessary to improve and fine-tune the technology. With experience and improvement a stage is reached when the technology may be said to have matured, which usually takes several years. It can be taken up for large scale production only at this stage. A small fault in the design of a product can bring disaster to a company which invests for its large scale manufacture before maturity. Some designs, specially the design of the cabinet, and production processes have to be changed while changing scales of production, which again needs further R&D.

A technically successful product may again fail due to various reasons. The application of the product may not attract customers, or its handling may not be liked by the customers, or the circuit may fail to function properly under environmental conditions not previously envisaged. As mentioned before, human interfacing is a big issue. The look and finishing of the cabinet and its ease of handling are very important. Availability of reliable components is also a big factor. Small manufacturers cannot import components from good manufacturers directly, they have to depend on whatever is made available in the local market by bulk importers of components. Sometimes a whole product range may have to be abandoned due to failure in one or other of these accounts. Such endeavours need a huge expenditure in R&D and significant financial and image-related risks are associated. Frustrations may easily creep in when a released product gets returned for failures not previously envisaged. If the product has a foreign competition, it becomes all the more difficult as it is hardly possible to excel in the outer looks and finishing compared to a foreign product, even if the technology inside may be better.

Already some electronics technologists have successfully designed electronic circuits indigenously from scratch and have crossed the almost insurmountable challenge mentioned above. Even completely new products suited to local needs which were not known to the market before were introduced successfully by local experts.

Presented below is a sample of products developed by Bangladeshi technologists. Only those products have been chosen which have been commercialised already, or are at the final stages of commercialisation, whether in small scale or large scale. Some of the products are innovative, these were not available in the market before.

Unfortunately due to wrong tax policies of the Government since 1998 that favour import of finished products to import, these spontaneous efforts that flourished in both cases 1b and 1c above are now in danger of complete closure. Only because of their inherent innovativeness they could struggle and survive somehow till today, but the time of struggle has been too long, they are facing total annihilation unless remedial actions are taken immediately.

5.5.2 Products developed locally from scratch (100% locally developed)

i) Computer or microprocessor controlled equipment

Technologically the most challenging type requiring expertise in both electronic hardware and computer software. This is a very promising sector as the value addition is very high. Products developed are (not exhaustive):

1. Computerised EMG/EP (Electro-Myogram/ Evoked Potential) equipment
2. Computerised ECG (Electro Cardiogram) on-line monitor
3. Computerised Spirometer (for lung function measurement)
4. Computerised Thyroid uptake system
5. Computerised Electric Energy-Meter testing system
6. Computerised Electronic Scoreboard Display
7. Computerised system for measurement of area of leather.
8. Computerised system for measuring switching time of UPS and stabilisers.
9. Computerised motor speed controller
10. Computer controlled voltage Stabiliser
11. Analogue interface cards for computers.
12. Computer Control Teaching system for children
13. Microprocessor training kit
14. Microcontroller training system
15. Microprocessor controlled Pre-paid energy meter
16. Microcontroller based taxi meter

ii) Non-computerised equipment:

1. DC Power supplies,
2. Power supply for discharge tubes,
3. pH meter,
4. Temperature controlled ovens,
5. Temperature control for industry,
6. Dawn-dusk photo switch for security lights,
7. Solar battery charge controller,
8. Inverter,
9. Battery back-up 220V ac power systems (Instant Power Supply, Uninterruptible power supply),
10. Electronic ballast,

11. Light & Fan regulators,
12. PA and Hi-Fi amplifier,
13. Emergency lights with battery back-up,
14. PABX exchange,
15. Mobile telephone to PABX,
16. Assorted equipment for laboratory experiments,
17. Signal Generator,
18. Electronic trainer board,
19. Muscle & Nerve Stimulator for physiotherapy,
20. Iontophoresis equipment for treatment of excessive sweating of palms and soles,

iii) Components:

1. Small transformers needed in voltage stabilisers,
2. Fly-back transformer of televisions.
3. Coils of various types.

The above lists are impressive, but the necessary commercialization has not taken place. The present author being a pioneer in this respect has the answers to this question which he will discuss in this paper. The above initiatives have been taken by the private sector, Government Research organisations and the NGO's. However, Government organisations lack the modality necessary for commercialisation of their products.

5.6 Electronics – Case Studies for indigenous technology based industries

5.6.1 Micro Industries Ltd

In the early eighties an innovative graduate engineer named Mr. Mofiuddoula was traveling up and down Bangladesh in providing technical solutions to different industries. The pressure was too much physically and he decided to settle for an electronic industry. As of a coincidence the Government was having some favourable policies at that time with funds and other facilities through BSCIC which he could take advantage of. Together with his wife Mrs. Hasina Doula he pioneered in promoting a brand name of his own in the form of Micro-Elecronics around 1985. This firm made voltage stabilizers, 3 phase industrial stabilizers, emergency lights, calling bells, remote control for lights and fans, and later IPS, UPS etc. using acquired electronic technology and targeted the home market first. Mr. Doula designed and made his own transformers and cabinets. This brand identification helped his group to grow and to become highly successful within a short time. Soon several other enterprises and brand names started to appear in the market, a number of them being set up by people trained at Micro-Electronics and eventually breaking away from it. This growth in business allowed small enterprises to be set up to produce cabinets or transformers only, who worked as a backward linkage to the budding electronics industry. The rising demand created a scope for electronic component trading and scores of shops began to be set up to sell imported and locally made electronic component in low volumes, suitable for the newly set up small enterprises. This in turn made setting up of an electronics manufacturing enterprise easier, so more people started venturing into this business. Micro-Electronics established itself as the market leader by having distributors all over the country. It also started exporting UPS and Stabilisers to India. Unfortunately, the policies of the Government in 1998 to allow duty and VAT free (or low duty) import of Computers and accessories, which included finished UPS, and of Solar Photovoltaic Generators which included electronic Charge Controllers and Inverters hit the industry hard. Soon the traders could import voltage stabilizers also at low duties by twisting the interpretations of these policies. In order to survive Micro decided to go for Television assembly and introduced its own brand. Again the self-defeating tax policies of the Government

in this regard taken in 2002 made Micro Electronics to close down this new wing. The recent death of Mr. Doula was sort of a disadvantage, but Mrs. Doula, involved intimately with this industry since its inception could have easily steered it through had it not been for the suicidal tax policies of the Government. Now Micro-Electronics struggles to survive with the work force reduced to one third or one fourth to what it once had.

5.6.2 Dr. Rabbani's techno-preneurial challenge

In 1981, all electrical appliances in Dr. Rabbani's (the present author) residence were damaged due to the presence of about 400V on the 220V power line. There was no stand-alone product in the world market at the consumer level that could protect from such high voltages at an affordable cost. So he designed an electronic protecting device at low cost which could itself stand up to 440V, the maximum that could ever occur on the domestic 220V line and used prototypes of this to protect his own appliances for years together with success. He saw a potential for commercial manufacture of this new product and contacted a local electronic manufacturer who refused to take up a hitherto unknown product. Dr. Rabbani had the previous experience of failure of introducing a new product into the market by other businessmen, and therefore decided to try on his own, as a part time entrepreneur besides his University teaching and research commitments. In 1988 Dr. Rabbani started hunting for finance for this project but could not get any Bank-loan as he did not have any property to offer as collateral. In 1989 he decided to start from zero and took two of his ex-students to work on a profit sharing basis. Together they improved upon the previous design of the product to make it marketable. The drawing room of his small residence became the factory during daytime. It was mainly through people who knew Dr. Rabbani and had confidence in him that the marketing started with a brand name of "BAEPRO". Within six months the factory could afford to move out from his residence to an independent rented premises. The group developed more related products and continued improving the designs through customer feedback. Attractive advertising through the media is costly, so Dr. Rabbani took recourse to innovative low cost advertising, camouflaged as "news" or as "educational information". These worked like magic and eventually the word spread about the new product. Soon other producers started copying this new product and the market grew.

With confidence established in the technology of the new products and their marketability, Dr. Rabbani needed more funds to expand, and with this aim joined hands with a private entrepreneur. This had a devastating result, and Dr. Rabbani's original group had to submit the enterprise that they created out of their own 'intellect and sweat' to this new partner and come out with a meager amount as compensation. With that they started afresh with a new brand "Bitek" and soon it got established in the market as a leader and quality producer of home-grown technology. Within four years Bitek earned a name and confidence and it seemed to be an appropriate point to expand business on a much larger scale. Side by side Dr. Rabbani initiated a non-Government and non-profit R&D establishment named "BiBEAT" in order to provide a platform for technology transfer, of the results of research carried out at institutions like the University. He himself had a number of Electro-medical and Computerised Medical equipment developed, both at the University and at BiBEAT, which could go for production and he planned to do this through Bitek. This called for funds. Since he did not have any landed property Dr. Rabbani knew that he could not get a loan from the traditional banking sector. Therefore he approached Grameen Fund, a sister concern of world famous Grameen Bank, for a joint venture through which necessary funds could be pumped in, and thus "Grameen Bitek" was formed in 1998.

However, Grameen Fund took majority share in the new company to dominate decision making and professional CEO's were hired. Unfortunately, the company suffered serious losses in the first two years and decision was about to be taken to close it down. At this point, Dr. Rabbani put forward a challenge and took the management of the terribly sick company. Within months

he was able to bring the company back on its own foot, earning an operating profit instead of losses. The interesting part of the story is that he did it part time, side by side of his University duties of teaching and research! However, due to the reversed tax policies as mentioned before, and a slump in business after the 9/11 attack in the USA, it was gradually getting difficult to maintain enough margin. Dr. Rabbani developed several new innovative products to counter this slump and requested funds from the company partners. However, there was a pressure of going over to part trading (selling imported products) from the dominant partners rather than trying out these new products to which he could not reconcile. That saw the end of Dr. Rabbani's association with Grameen Bitek.

5.7 Inferences from the case studies - Electronics

Several points come out from the above studies:

p) Educated youths can be attracted into entrepreneurship in the Electronics sector, which is basically knowledge based.
q) Targeting the home market makes an easier venture, and there is better chance of success. Eventually this can lead to export.
r) A technology innovator can get round the requirement of initial finance for his enterprise though his ingenuity, skill and trustworthiness in the society.
s) A technology innovator as the decision maker of a technology based growing enterprise increases the chances of success.
t) A technology innovator in the decision making chair can bring in newer innovative products to the market which others cannot.
u) A non–technology person in the decision making chair of a technology based manufacturing company soon opts for easier routes that promote trading rather than manufacturing.
v) Bringing newer products into the market by technology innovators turned entrepreneurs allows many other small manufacturing enterprises to copy and grow.
w) A few technology innovators as entrepreneur can create a great enthusiasm which can lead to a network of business, including backward and forward linkage.
x) Funds given to an already successful and growing manufacturing company are utilized better, and there is less risk of failure.
y) The Government tax policies finally dictate the viability of an industry. Simply through wrong policies the Government can destroy a whole sector in spite of the presence of all other favourable factors for an enterprise.

6. Numbers and Statistics

6.1 A baby with potentials

As mentioned before, in this paper we give relatively less importance to exact numbers and statistics, since we are talking about a baby, its present performance is not at all something that should form the basis of a Government policy. Rather we should concentrate in creating an environment where the baby can grow up uninhibited, which does not exist at present. Besides accurate data on small industry in Bangladesh, particularly of the kind we are interested in through this paper, are not available. Therefore no growth statistics can be made out from these data. Till a conducive environment is ensured and maintained for at least half a decade, any data are of little use except that it can give an indication of future potential, like the looks and gestures of the baby. We present below whatever numbers and statistics could be gathered during the short period of time for this assignment as an indicator of this potential. It should be remembered that whatever exists today has been possible through the ingenuity and struggle of

innovative people, in spite of wrong policies of the Government detrimental to these industries. Can we think what could have been the figures if we had taken the right policies?

6.2 Light Engineering

Estimates based on BSCIC survey of 1994 suggest the current existence of about 60,000 small industries out of which 25%, or about 15,000 were estimated to fall under Light Engineering sector by Dr. Kamal Uddin[5]. The same report by Dr. Uddin refers to an estimate of the Bangladesh Engineering Industries Owners' Association (BEIOA) which is about 40,000 units. This seems to be very high compared to the above estimate. However, it is not clear whether the BSCIC estimate includes a large number of roadside workshops which cater to customer demands, the total contribution of which may not negligible. It may be possible that such roadside workshops were considered under the cottage industries heading for which the total BSCIC estimate goes to about 600,000. Dr. Uddin's report mentioned an employment generation of 50,000 per year giving the reference of BEIOA. There must be some mistake as it would be only possible if the growth rate were abnormally high. The author recently obtained an estimate from the office bearers of BEIOA who put the number of units at around 30,000, with about 90,000 workers employed therein. These estimates are summarized in Table-1.

Table-1: Estimate on Light Engineering enterprise

	Dr. Uddin's estimate from BSCIC survey of 1994	BEIOA estimate, reported in Dr. Uddin's paper	Recent figures quoted by BEIOA to the author
No. of Light Engineering enterprises	15,000	40,000	30,000
No. of people employed		Not given. Generation: 50,000 per year*	90,000

* This is highly unlikely as the growth rate of the industry is not that high

Some other pertinent data that the author obtained from BEIOA are given in Table-2.

Table-2: Relevant estimated figures on Light Engineering industry, 2006

No. of units	30,000	Average profit rate	10%
No. of employees	90,000	No. of years needed to realize investment	10 years
Average no. of employees per unit	3	No. of units having own sales center	100
Highest no. of employees in a single unit	25	Marketing strategy	Through individual contacts
Average capital investment per unit	Tk. 1 lakh	Organising fairs etc.	Irregular
Highest capital investment per unit	Tk. 5 lakh	Advertisements, if any	none
Ratio of Working capital to fixed capital	0.05	Common marketing effort through Association	none
Total yearly production volume	Tk.500 crore*	Export (2003-2004)	US$ 0.5 million
No. of units in and around Dhaka	12,000	Link with other larger bodies	Yes, with FBCCI

* This is the author's estimate based on no. of units and estimated volume of business. The figure quoted by BEIOA was not reliable.

[5]Dr. Md. Kamal Uddin, "Light Engineering Industries in SME sector" – Report of DCCI, 2003

Table-3 gives an idea of the types of enterprises in this sector, their main involvement, etc. as obtained by the author from BEIOA.

Table -3: Types of enterprise (estimated percent based on sales volume), 2006	
Agricultural machinery	35%
Motor launch, small vessels for plying in the river	2%
Motor Cycle, 3 or 4 wheeled vehicles	3%
Parts and spares for railway, cycle, rickshaw, etc.	10%
Spares of Jute and Textile industry Metal furniture	20% 10%
Iron grill working	10%
Foundry, Iron, Copper-alloy, Aluminium- alloy	10%
Concrete mixer, Brick crusher	<1%

Actually all these data are speculative, and there would be a large margin of error, as there was no survey except the one done by BSCIC in 1994. The recently formed SME Taskforce and the SME advisory panel have suggested carrying out a large scale survey on the whole SME sector of Bangladesh.

Dr. Uddin also obtained some projections on the growth prospects of the light engineering sector from questioning 19 insiders, and the overall assessment is very good. According to these reponses there is a large home market as well as a good export market. As regards the prospects and problems of this sector in Bangladesh the following may be quoted based on the paper of Dr. Uddin. It needs to be pointed out that Dr. Uddin included Electronics sector within Light Engineering while the present paper discusses them separately.

At present about 3800 types of machinery and spare parts are being produced by this sector, and about 1200 enterprises enlisted with BSCIC are supplying various Government and Semi-Government organization through a 'Sub-contracting' scheme chalked out by BSCIC. The organizations include Bangladesh Railway, Titas, Bakhrabad and Jalalabad gas companies, Sugar and Food industries Corporation, Bangladesh Road transport Authority, Bangladesh Inland Water Transport Authority, Port Authority, Water and Sewerage Authority, Telephone & Telegraph Board, Power Development Board, Public Health Engineering, Civil Aviation, Bangladesh Chemical Industries Corporation, Bangladesh Textile Mills Corporation, Bangladesh Jute Industries Corporation, etc. Table-4 shows the number of types of spare parts produced in different sectors.

Table 4: Number of types of spare parts produced in different sectors					
Sl. No.	Sub-Sector	No. of types of Spare parts	Sl. No.	Sub-Sector	No. of types of Spare parts
1	Automobile	200	9	Engg. & Metal Industries	800
2	Railway	600	10	Ship industries	150
3	Bicycle & Rickshaw	50	11	Agricultural sector	100
4	Machine Tools	100	12	Oil & Gas line fittings	15
5	Jute & Textile	550	13	Electrical	350
6	Chemical Industries	550	14	Electronics	50
7	Sugar & Food Industries	200	15	Telecommunication	50
8	Pharmaceuticals Industries	50			

As regards the problems, the following were identified through the interviews taken by Dr. Uddin from 19 respondents and these are listed below, presented in order of importance.

1. Lack of modern technology
2. Lack of capital
3. Irregular power supply
4. High interest rate
5. Lack of Government subsidy
6. Non-availability of raw materials
7. Lack of supportive Government policy
8. High Competition
9. Lack of skilled workers
10. Lack of R&D

Dr. Uddin's limited survey also indicated that the top assistance priorities were, respectively, technology and finance. The report also included a long list of key hindrances to the growth of Light Engineering sectors at both Micro and Macro levels, which included harassment by Government tax officials and local musclemen.

6.3 Electronics

6.3.1 number of units and volume of sale

The data would be entirely from the estimates of insiders of this sector, the author being one of them. The author obtained information on the number of enterprises from electronic component importers and traders. Since all local electronic industries purchase their required components from such traders, this information can be relied upon. These component shops are mostly concentrated at two places – Islampur and Dhaka Stadium, and together they make a total of more than 300 shops. There are some component shops in districts outside Dhaka, but their total sale figure would be hardly 10% of the total country figure, the remaining 90% being sold by these shops in Dhaka. For the sale volume, the author extrapolated the value from the probable sale figure of components of such shops. These data are presented in Table-5 for the pre-2002 period and for 2005.

Table-5: Estimated number of Electronics manufacturing/assembly enterprise,

	Pre-2002 period		**As of 2005**	
	No.of units	Annual turnover, Crore Tk.	No.of units	Annual turnover, Crore Tk.
Indigenous technology based enterprises	2000	200	~500	50
Assembly units of TV, Radios, etc.	300	50	few	negiligible
Total number of units	**2300**	**250**	**~500**	**50**
Source: Industry-insider information				

The pre-2002 situation and the current figures in Table-5 above presents a catastrophic picture no nation would like to see. There were perhaps some 2300 or so establishments, large or small, throughout the country before 2002 while the figure has dropped to a mere 500 in 2006. The figure for the assembly industry is all the more striking, reducing to a mere handful.

The gross value of production of these establishments was of the order of Tk.200 crore (Tk.2 billion) in the pre-2002 period which has reduced to a meager Tk.50 crore or so (Tk.0.5 billion)

in 2005. This is a trade estimate, and will understandably have a reasonable margin of error. Many of the component traders have switched to trading of imported finished items, and many of the manufacturers have either switched to trading, or have gone for other professions. One shudders to think of the damage caused by our own Government policies!

6.3.2 Why this decline?

a) The case of Television Assembly

Before 2002 there was an adequate margin between the import duties of finished Television and its CKD kits (Completely Knocked Down kits- comprising of individual components all separate) to make the assembly industry competitive, the import duties being 30% and 15% respectively. A flourishing market was created for such locally assembled TV which were available at low cost. In the budget of 2002 the margin was reduced by increasing the import duty on CKD kits to 22.5% which made local assembly uncompetitive against imported finished ones. The effect was instantaneous, virtually all of the small assembly enterprises shut down in the said year, excepting a handful of large ones, having established foreign or local brands. On appeal from the stakeholders and academicians the policy was corrected back to the previous rates in the budget of 2003, and a ray of hope appeared among the producers who started preparing for a come back. With a change in leadership of NBR in early 2004 their hopes were crushed by the imposition of a regulatory duty of 22.5% on the CKD kits while imposing a mere 5% on finished TV through a special SRO. This was subsequently firmly established by setting exactly equal import duties of 25% on both finished TV and its CKD kits in the budget of 2004, which is being continued till today. A local producer will have to pay a further 15% VAT at production which will naturally make the enterprise uncompetitive. Table-6 gives a chronological picture of the duty imposition while Fig.2 represents it graphically.

Table-6: Chronological picture of duties related to the Television sector

	Pre-2002	Budget 2002	Budget 2003	**SRO March-2004**	Budget 2004
Import Duty On **CKD** kits	15%	22.5%	15%	15%	25%
Regulatory duty on **CKD** kits	none	none	none	**22.5%**	none
Import duty on **finished** TV	30%	30%	30%	30%	25%
Regulatory duty on **finished**TV	none	none	none	**5%**	none

Note: There are other taxes like VAT, etc. at import which are equal in both cases. However, local producers have to pay an additional 15% VAT (with rebate for VAT paid at import on components), which is not required in the case of imported finished TV. At retail sale point both local and imported ones have to pay an additional retail VAT of 1.5%.

The NBR argued that readymade modules were being imported in the name of CKD kits. Now this abuse is not possible without the concurrence of corrupt customs officials, and such abuses are taking place in all other items more or less. Has the NBR taken similar steps in all other cases? Obviously the answer is no. If we look at the raising and lowering of duties since 2002 in this sector, as presented in the above table and in Fig.5, the tug of war between local assemblers and traders become apparent, and the picture clearly makes out who could influence NBR more in the recent times. Of particular interest is the SRO imposing a regulatory duty of 22.5% on CKD kits issued in March 2004, only 3 months before the next budget. It is usual to change such tax policies in the national budget through public debate in June each year unless there is a case of extreme emergency in terms of national interest. Here NBR acted as if the

previous tax policy in the TV sector suddenly became a serious cause of national concern! The imposition of only 5% regulatory duty on finished TV appears as a childish attempt at face-wash, as if to say, "we have imposed regulatory duties on both"! If one sums up the duties after the imposition of the regulatory duties, clearly that on the CKD kits is more than that on the finished TV as is also clear in Fig.2. Let us now look at the ultimate results - the very large domestic TV market created by the assemblers has been captured by finished foreign TV's, hundreds of enterprises have been shut down, hundreds of thousands of workers, predominantly women, have become unemployed. Is it a boon or bane to the country? NBR owe an explanation to the nation.

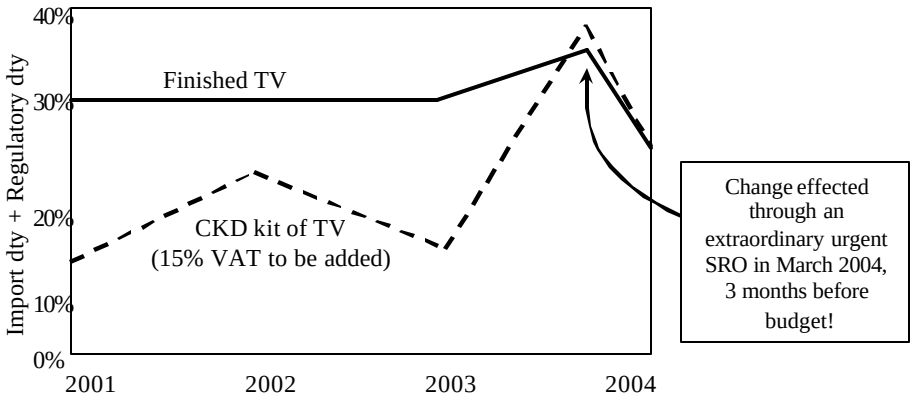


Fig.2: duties on TV, finished & CKD kit

b) The case of Indigenous technology based electronics industry

As mentioned before indigenous technology based electronics industry should be a target for Bangladesh considering the present trend in the global scenario. This sector has a huge potential both for the domestic market as well as for export, and Bangladeshi talent is very well suited to take up these challenges. Therefore, in order to allow this industry to flourish, imported electronic components need to be made available at the lowest cost possible through waiver of import duties, ideally, or imposing the minimum of duties. On the other hand relatively higher duties should be imposed on finished products so that the local producers can be competitive. Let us now see what has happened in this arena in the recent past. Most of the electronic components that are used to make different finished products are termed as intermediate products and have a 15% Import duty (modified to 13% in 2005). The normal policy is that finished products should have a higher rate (30% on or before 2004, 25% in 2005). This will allow local producers employing local labour and management to have a competitive edge in the market. Some finished items are supposed to have an additional supplementary duty of around 40% to protect local industries. On the other hand in the name of consumer interest, often duties on certain finished products in the electronics sector are reduced while keeping the duties on components and the VAT at production the same. Many electronic professional appliances like Signal generators, Oscilloscopes, burglar alarms, security items etc. are dutiable at only 7.5% (6% in 2005) while the components to make these products remain the same as mentioned above, at much higher rates. So this clearly acts as a discouraging policy for generation of local manufacturing enterprise. However, the innovative local technologists sought out other products like Voltage Stabilisers, UPS, IPS, etc., which could have a competitive edge in view of existing tax structures. They offered these products at much lower prices compared to those of the imported ones and guaranteed maintenance.

In 1998 Traders managed to mobilize public opinion into influencing the Government in waiving all import duties and VAT on Computers and accessories, and on Solar Photovoltaic (PV) Generators. These duty waived items included UPS that was imported together with a

computer. As if to satisfy local producers of UPS a very small amount of duty, far less than that imposed on raw materials, was imposed on UPS imported separately. On the other hand, no duty concessions were made on its raw materials and on VAT at production level. Solar PV generators included rechargeable batteries, electronic charge controllers and Inverters which are made locally. Again no duty concessions were made to local production. Rechargeable batteries being heavy and bulky, were not affected much, but the electronic items found an easy entry into the country. Besides, these opened up the opportunity of importing many other electronic products at such low duties through slightly twisted interpretation of the tariff descriptions, in connivance with customs officials. This inverted duty structure turned the table heavily against local production, a clear suicidal policy for any independent nation. Thus a flourishing market of UPS was grabbed from local manufacturers and handed over totally to foreign producers. On repeated requests from local manufacturers, the NBR did not budge. Recently, traders have also found ways to interpret the tax schedules to import Voltage Stabilisers, music amplifiers – almost all the main items that the indigenous technology based enterprises were producing – taking advantage of much reduced import duties on items remotely resembling the names or types of such products. This has affected the local industry severely. Even then they continued their struggle through maintaining high quality of products and services, or veering to newer products. All appeals to the Government fell on deaf ears. But 7 years is a long time that one can endure such opposing tax structure, and this resulted in the gradual demise of the local industry as shown in Table-5. The British colonial Government did take such measures to destroy local textile industry and to introduce British made ones into our market. It is strange that our own national Government is doing just that! NBR owes an explanation to the nation on this count as well. The total tax incidence (TTI) on imported finished UPS and that on imported raw materials of a UPS are shown side by side in Table-7 which clearly depicts the suicidal policies of the Government.

Here it can be seen that with a TTI of 60% to 136% on imported components (equivalent to an effective weighted average of 80% as batteries take up 25% of the raw material cost), local UPS industries have been given the challenge to compete against finished foreign products with a maximum TTI of only about 7.7%! TTI on a couple of other products that are made by local producers have a similar inverse duty structure as shown in Table-8. The root cause of decline of this industry is probably clear.

Table-7: Total Tax Incidence (TTI) of imported finished UPS and its components

Finished UPS		**Raw materials of UPS #**	
Imported with a computer HSC: 84.73	imported separately HSC: 8504.40.90	Sealed Rechargeable Battery HSC: 8507.20.00*	Other electronic components**
CD= 0% SD= 0% VAT= 0% AIT= 0% IDS= 4% ATV= 1.5%	CD= 6% SD= 0% VAT= 0% AIT= 0% IDS= 0% ATV= 1.5%	CD= 25% SD= 35% VAT= 15% AIT= 3% IDS= 4% ATV= 1.5% FVAT =15%	CD= 13% SD= 0% VAT= 15% AIT= 3% IDS= 4% ATV= 1.5% FVAT =15%
5.7%	**7.7%**	**135.8%**	**60.2%**

The battery cost is about 25% of the total cost of raw materials in a UPS. So the effective duty would be about 80% on the raw materials of a UPS.

* This particular type of rechargeable battery (sealed type) or accumulator is not produced in the country, and therefore, there is no justification to impose the high tax intended for the protection of locally made wet lead acid batteries. (HS Code: 85.07)

** Mainly under HS Codes:, 85.32, 85.33, 85.41, 8542.21.00, 8542.29.00, 8542.60.00

Abbreviations CD: Customs duty, SD: Supplementary duty, VAT: Value Added Tax, AIT: Advance Income Tax, IDS: Infrastructure development surcharge, ATV: Advance trade VAT, FVAT: Factory VAT (for local production). For reasons described elsewhere, local electronic industries do not get any VAT rebate, so FVAT applies also to items for which any VAT has been paid at earlier stages, resulting in a VAT rate more than twice the normal rate.

Table-8: Total Tax Incidence (TTI) on two other finished products and their raw materials

PhotoVoltaic (PV) Charge Controller and Inverter			**Voltage Stabiliser** (under 85.35 & 85.36)		
Finished product#		Components as raw materials*	Finished product#		Components as raw materials*
CD= 0% SD= 0% VAT= 0% AIT= 0% IDS= 4% ATV= 1.5%		CD= 13% SD= 0% VAT= 15% AIT= 3% IDS= 4% ATV= 1.5% FVAT =15%	CD= 13% SD= 0% VAT= 15% AIT= 3% IDS= 4% ATV= 1.5%		CD= 13% SD= 0% VAT= 15% AIT= 3% IDS= 4% ATV= 1.5% FVAT =15%
5.7%		**60.2%**	**52.3%**		**60.2%**

From the above tables it appears surprising how even the 500 or so indigenous technology based enterprises have survived such an onslaught for eight years! Had they had a favourable policy, what a prize they could have offered to Bangladesh in terms of industrial growth, it is easy to imagine.

6.4 Electronics - Domestic Market Prospects

Consumption of electronic products is increasing day by day. Use of electronic items can be an indicator of modern life. With increasing urbanization, and with an increase in the number of people coming out of poverty, the demand for electronic products will keep on increasing for many years to come. In the following table (Table-9) a rough estimate of the envisaged potential domestic market for electronic items that can be assembled / manufactured with the present level of technological expertise and facilities is presented. If the Government provides a level playing field to local producers, much of this local market could be ours. In fact, even before tapping all of this market, we can definitely export to many third world countries, particularly in our neighbourhood and to countries in Africa and South America where similar power problems are experienced. Bangladeshi electronics experts have a unique experience of designing protective devices for electrical power lines with extreme abnormalities unheard of in the developed countries. Therefore this unique expertise can be utilized to earn foreign exchange for the country right away if the Government rationalized the tax system and cleared the obstacles to this sector. Besides, this sector could generate employment for a large number of workers, mostly women.

Table-9: Rough estimate of the envisaged potential domestic market for electronic items that can be assembled / manufactured locally

Item	Approx. no. of units	Amount, Billion Tk.
Colour TV	200,000	3.0
Black & White TV	400,000	1.4
Radio	400,000	0.1
Radio+Cassette Recorder	400,000	0.8
Computer casing with	200,000	0.25

integrated power supply		
Conference Systems	1000	0.2
Intercom sets	10000	0.1
Public Address amplifier	2500	0.01
Domestic music amplifier	100000	0.5
…. *Continued from previous page*		
Item	Approx. no. of units	Amount, Billion Tk.
Voltage Stabiliser/ Voltage protector (<3KVA)	1,000,000	2.0
Industrial Voltage Stabiliser	20000	0.6
UPS for computer	200,000	0.5
IPS for homes and offices	15,000	0.3
Emergency light	200,000	0.2
Electronic equipment for Solar PV systems	10000	0.1
Medical Electronics equipment	10,000	0.2
Electronic ballast for fluorescent tube light	2,000,000	0.3
Compact fluorescent lamp with integrated electronics	2,000,000	0.5
Security systems (burglar alarm, fire & smoke detector, Personnel metal detector, security arch, etc.)	10,000	0.1
TOTAL		11.16

The above total is equivalent to about Tk.1100 crore (Tk.11 billion). This is a conservative estimate, if locally made products are available at lower costs, the market will automatically increase. The above figure can also be estimated from the number of electricity users in the cities and towns of Bangladesh for which an authentic figure is available (Table-10, source: PDB). This excludes a much larger number of small consumers under Rural Electricity programme who cannot possibly afford to buy the electronic products. The users in cities and towns can be considered as the main customer base for domestic household products.

As a very gross estimate, if each household buys Tk.5,000 worth of electronic items per year on average then the total market comes to Tk.5 billion or Tk.500 crore. In addition there are industries, factories, offices that buy very expensive equipment the total value of which may give a similar figure. The sum-total is then Tk.1000 crore or Tk.10 billion, which is not too far off from the estimated figure in Table-9 above. As mentioned before this figure can get multiplied when an export market can be tapped.

TABLE-10: Household Electricity Customer Base	
Domestic household with electricity in cities and towns of Bangladesh (source: PDB, 2005)	More than 1,000,000

7. Misconceptions and mistakes in existing promotion efforts

Many of the promotional efforts for SME's by various agencies and groups suffer due to a lack of understanding of the situation existing in an economically and industrially developing nation

as has been hinted before. Some specific points are discussed below. It has to be remembered, as mentioned before, that ***any development programme should aim at giving the common people the power to be in command of their own destiny, through the use of their own intellects, skills and resources, and not to remain dependent on anybody else for their basic survival.***

7.1 Technology, Training and funds are not problems for new entrants

Most policymakers or donor agencies prioritise these as the major obstacles to the growth of small enterprises in the developing countries. As mentioned before, the basic nature of such engineering type enterprise require a technology innovator to try out his new product from a very tiny scale, usually a few piece at a time, which he usually does risking own resources. He also gets support from friends and relatives – this is a basic social instinct for human survival. The margins provided are usually adequate to help the new entrant to grow step by step, increasing his capital gradually if he is a capable techno-preneur. If he is not capable, he has to drop out soon enough, and the financial loss is also not very high to an individual. This acts as a natural selection of the successful entrepreneurs. Therefore, at this level of entry neither technology nor finance is a restraining factor. It is the quality and capability of the new entrant that is of importance. Any nation has will have some people with such capabilities at any stage of development and what is needed is to reduce their obstacles as much as possible.

This is the regime that this paper gives the most importance as the success of this regime will determine how many future entrants the nation will get in this sector. If this regime fails, frustration will grip the nation, and that is precisely what has happened in the past 50 years or so.

When a new entrant is 'successful' he grows up and wants to improve upon his product. In addition he has to survive competition from other techno-preneurs as well. This may demand diversifying to new products too. Therefore a successful entrepreneur has to continually maintain an involvement in R&D and at this stage a support in the form of further education and training may be of help. So at this stage technology may appear somewhat as an obstacle. However, if the primary requisite of an unobstructed environment is present such 'graduates' in enterprise can afford to hire able R&D personnel or can pay expert technologists from Universities or other research organizations to help them out.

At this stage of entry the risk is too high and the author feels that it is not wise to provide loans to these starters from public funds. Nor is it wise to push a person to technological innovation who does not have it naturally. It is not possible to push an entrepreneur to success who does not have a natural ability to face challenges, who does not have the basic capabilities of technological innovation, who does not have the natural ability to understand his environment and surroundings needed for successful marketing, who does not have the ability to maintain good human relation and managerial ability to run a successful business. One has to have the basic pre requisites first and the ability to learn things through doing. Incapable ones will naturally drop out. Easy availability of loan from public funds and a 'turn-key' technological solution at this stage often goes against the enthusiasm to face challenges as well. Only when an entrant is successful over some years and shows the ability to grow successfully that he will be able to utilize extra funds, or technology relevant to his requirement, if provided to him.

7.1.2 Secondary stage: Technology not a problem in Electronics

In Bangladesh the Electronics sector is fortunate to have the involvement of people having knowledge and expertise in the subject and does not have an immediate problem with technology. Many of the techno-preneurs are Graduate degree holders in related science and engineering subjects who can design products from scratch and adapt newer technology when necessary, while others can copy designs perfectly and improvise where necessary. These techno-preneurs are adequately equipped to train up their workers in their premises.

7.1.3 Secondary Stage: Light Engineering has some technology problem

Unfortunately the Light engineering sector has not drawn graduate engineers so much as Electronics could, therefore there exists some problem with technology as the entrepreneurs cross their initial entrant level. These people mostly have great skill in copying things that can be seen with the naked eye, but they do not have any clue where knowledge is important, as in metallurgical problems, microscopic defects and fatigues in metals, or in the electrical properties of relevant items.

7.2 Secondary Stage: Fund is necessary but not a serious problem

When a techno-preneur entrant succeeds and grows, i.e., 'graduates' as an entrepreneur, he may feel that funds could give his enterprise a boost to expand it at a greater pace. However, the problem is not acute as he is well known in the entrepreneur community by now and enterprises which act as backward and forward linkages often provide the necessary credit in kind.

7.3 Worker training not problem if techno-preneur is capable

If a techno-preneur is capable he can usually train up workers according to his needs as the youth in Bangladesh are very quick learners in technological skill. Besides, there are several training schools who train up young people as electronic technicians, who make the majority of the workforce. So worker training is also not a problem.

7.4 Why do policymakers see technology and fund as problems

The policymakers are usually non-technical people and therefore do not have 'feel' for the real problems. As mentioned before they plan on a 'fresh canvas' and therefore assume that investment of money is the first step in industrialization. When such funds are released by the Government almost all of it goes to opportunity hunters, often relatives or near ones of the people responsible for disbursement of the money, or to people with political connection, none of whom has the pre-requisites to become a techno-preneur at all. Some of them may be pure traders having no previous experience on the technology or the enterprise. Banks usually give loan to 'businessmen'- people with the capability to provide 'collaterals' – there are no criteria to see whether they have the right capability to become a techno-preneur or not, or whether they have a successful entrepreneurial track record in the proposed sector. The recipients of such funds think that they can hire a technical person to run such an enterprise. This technical person is a novice to this industry, even though he may have academic credentials, therefore finds difficulty at every step. The company suffers loss and finds everything a problem – technology, worker skill, finance. As it is said, "***a bad workman fights with his tools***" – this is what that happens with such enterprises which should not have received scarce public finances at the very outset.

This explains why policymakers find technology, worker training and finance as the major problems, while to the real techno-preneur these are no problems at all.

7.5 Exploitation of cheap labour – not desirable for long term development

Most of the industrial programmes taken in Bangladesh aim at exploiting cheap labour to produce goods for export. Readymade garments industry, Computer data entry, Medical transcription services, etc. all have the same aim. One has to understand that exploiting cheap labour can give us immediate monetary relief, but it cannot be a long-term solution for growth of the country, nor it can provide sustained poverty alleviation.

7.6 Export thrust - wrong priority

Exporting to a rich region gives a handsome return in terms of business. That has happened with Ready-made garments and Handicrafts. Since most of the people associated with

international aid agencies for poverty alleviation in our country are familiar with markets in their own countries they find it easier to plan projects that target such markets. One has to realize that this makes our local entrepreneurs solely dependent on middlemen, as they are not familiar with the market envisaged. Besides tapping a foreign market by small local entrepreneurs on their own is virtually impossible. Such programmes do not give them the power to control their destiny as has been mentioned above as a prime requirement for poverty alleviation. A case study will highlight the point. A Bangladeshi entrepreneur (not small) exporting twisted jute carpets employed top artists of the country for designing the patterns and colours of his carpets. These did not sell well in the foreign markets. Then he employed a designer from abroad to do the job and the carpets sold very well abroad. If this is the story of a high-end businessman, what can be said about the small entrepreneurs in Bangladesh? Even when a village-folk makes a dress designed for the Bangladeshi city dwellers, the artisan has to depend solely on a middleman, a designer from the city as he has no idea about the tastes of the city dwellers. He cannot use his intellect to produce a design for that unfamiliar market if the market demands a new changed design. Therefore even making such items in the villages for the city market of the same country does not give a rural artisan the control over his enterprise and his destiny. The only exception would be if his own designs were accepted by a foreign market without any modifications.

Again exports that depend on specific requirements of a few countries, and those that depend on special concessions of foreign Governments, are very vulnerable. We have seen this in play regarding the quota system imposed by the USA on garments exported by Bangladesh. A single change in the rules may affect our survival drastically. This usually happens when we try to export to rich economically developed countries. If we manufactured products that could be used by people in the Third World similar to us in many ways, possibly such problems would not have arisen at all. In Light Engineering and Electronics sector Bangladesh has a very good potential of exporting to Africa, South America and other Third World countries, but we seem to always look at the difficult markets of the richer economies, draining much of our resources, but giving little profit, and that again, for only short term.

It is not to say that export should not be a target, the point that needs to be put forward is that the priority should be changed. Home market should get the top priority, and this should be for products that the common people themselves could use to enhance the quality of their own life. In order to achieve this state of affairs innovation in technology is an absolute necessity, and this can only come from local innovators and techno-preneurs, not from foreign experts. The foreign experts can help train the local experts and techno-preneurs in modern technology that may be of use here, but the product design should be made by the local innovators as they know their people best. The psychology, culture and affordability of the target group are important considerations for product design.

7.7 No growth possible with fully imported technology

Because of an inhibited environment as discussed before, small enterprises based on indigenous innovation could not flourish in Bangladesh. Many policymakers think that projects with fully foreign technology should be brought in even in the small enterprise sector. Such turn key projects may be right for medium and large industries, but not at all for the small ones. Rather we should try to build up gradually from indigenously acquired technology in this sector.

7.8 University-industry collaboration: not possible with imported technology

Policymakers frequently mention this catchy phrase of University-Industry collaboration, but this has never happened so far. With turn key projects having totally foreign technology there is no scope for such collaboration. Bangladesh had many jute mills using its local raw material – jute, but the technology was all foreign, so no changes could be incorporated locally to sustain

the industry, and no R&D collaboration could be initiated. Such collaboration can only take place when industries based on indigenous technology thrive and grow up right from the small scale.

7.9 Loans to fresh entrants: does not result in success

As mentioned before, most of our policies assume a 'fresh canvas', and promotes loans to new entrants. This results in large scale failure and wastage of scarce public funds. As has been argued before, if loans are given to techno-preneurs with a successful growth record they can use the funds much more effectively and there would be few failures, if any. Seeing the success of seniors, new entrants would also initiate enterprises on their own and create a chain of entrepreneurship, who in turn would become potential recipients of loans.

Some years back Bangladesh Bank initiated an Equity and Entrepreneurship Fund (EEF) for special sectors which specifically mentioned that only new enterprises can avail of this fund. An old enterprise can only apply for this fund if it registers under a new name. This is a completely wrong prescription for promoting enterprises. An enterprise can utilize a loan if it has some maturity in entrepreneurship, if it has an established market which has a potential to grow, and has an established brand name. Changing the brand-name will push it back many years, and the new enterprise will not be able to utilize the loan money effectively. If it could stick to the old brand name it could retrieve the finance in a short time and the funds could be rotated among more entrepreneurs.

7.10 Subsidies – wrong prescription, do not go to the right person

When cases of very small enterprises are presented, policymakers tend to talk about giving subsidies. To support R&D of light engineering and electronics enterprises, again people talk of grants. It should be remembered that subsidies and grants never go to the deserving candidates, opportunity hunters abound who will grab it all. On the other hand subsidies or grants has a derogatory effect on the initiative of a person and the zeal to face a challenge. What is needed to promote such kind of R&D efforts is relaxation of taxes and offer of loans without collateral.

8. Obstacles to Light Engineering and Electronics industry

8.1 Why Small industries grow and decay in Bangladesh

Economists in policymaking have often asked this question as to why a small industrial sector appears to grow and then disappear quickly. The author feels he has the answer. Technology innovators usually have the ability to seek out a niche in the market, a sector that has not been covered by existing large or medium industries, or through large scale imports. They quickly learn the required techniques needed and makes a successful debut in that arena. Seeing the initial success a large number of semi-techno-preneurs copy and market these products and the industry proliferates and attains 'visibility'. This 'visibility' itself then goes against their growth. How ? Seeing a new large market created by the local techno-preneurs, the traders become active when the market reaches a critical size. They seek out foreign producers making similar products and 'influence' the tax policymakers of the Government in 'reframing' specific tax policies so that the net cost of local production goes above that of importing it directly. The local producers are usually 'poor and timid' who cannot even think of voicing their protest to these 'modern day rulers' or the policymakers. Such instances of illogical and sudden 'inversion' in tax policies abound in the documents of the Government itself published by the National Board of Revenue (NBR), the authority responsible in framing such policies. The examples given before in respect of the electronics sector is a clear indicator of such malpractice. Similar instances are there too in the light engineering sector. The above analysis

answers the question raised at the beginning of this paragraph. The tax policies that go against such local production by small enterprises are described in a bit of detail below.

It is to be noted that industries which started 'big' having lots of money to begin with, could also 'influence' the tax policymakers into providing them tax protection against imports to an extent that is even more than necessary. There are also many instances in the national fiscal document where local industries enjoy high amount of tax protection against imports. It is only the small enterprises that suffer since they do not have the ability to 'influence' the policymakers. Besides, even if they gather enough courage to appeal, they usually meet the saner and honest section of the policymakers. Such people are usually in minority in the present context of Bangladesh and would not dare to put a 'fight' to see that what they believe right is done. In fact if they do so, they might themselves be branded 'corrupt' by the real corrupt officials of the same department, bringing their career to jeopardy. On the other hand the corrupt officials who have been 'paid' unofficially to do a job are 'committed' and will see that no stones are left unturned in order to achieve their goal. At the end these committed ones are those that wins, and this explains how money plays in a big way in destroying the small industries in Bangladesh. In fact this is the situation in many of the Third World countries where traders are more powerful than small industrial entrepreneurs.

8.2 Major obstacles to new entrants

As mentioned before it s the new entrants into techno-preneurship that we have to focus at. In Bangladesh the major obstacles at this stage are listed below in order of priority.

8.2.1 Inverse Government tax and tariff policies

In many cases, particularly in the electronics sector, the Government imposes high taxes for import of raw materials needed for local production while offers facilities of virtually zero duty or very much reduced duties for the import of similar finished products, on the pretext of various excuses. In addition local producers have to pay VAT at 15% (theoretically rebated to cover VAT paid on raw materials during import, which most small entrepreneurs cannot claim back in practice) at production stage while a trader has an option to pay only 1.5% on the total sale figure. Due to such suicidal tax policies the local manufacturer cannot compete with similar imported products in price and is bound to fail. This problem is particularly acute in the electronics sector. While it may not be that acute generally in light engineering, but there are cases which shows that when a particular sector shows some progress, suddenly taxes on raw materials are increased, or the tax on the import of the finished product is reduced.

8.2.2 VAT scheme and corruption

As mentioned before and detailed in ***Annexure-2***, the VAT scheme acts against the success of small manufacturing enterprises, particularly those having the capability of technological innovation in light engineering and electronics. ***Firstly,*** the light engineering and electronics sector depend mostly on imported raw materials and components which are sold in small amounts to these entrepreneurs by bulk importers who pay 15% VAT at import and again a Retail VAT of 1.5% during sales. This latter disallow further claims of rebate on VAT paid previously so that when the small producer again pays a 15% VAT during supply, effectively more than 30% VAT is being paid against the imported components, thus increasing the cost abnormally. Besides, it is impractical to provide import documents to so many small purchasers even if this Retail VAT was withdrawn. ***Secondly,*** since in-house R&D pushes the price of products higher, VAT effectively taxes and discourages innovation. ***Thirdly,*** the system of VAT payment depends on fixed registered models of products, which does not suit the character of an engineering enterprise that has the capability to provide many variations to a product depending on customer requirements, and this happens almost daily. ***Fourthly,*** the VAT scheme puts the small industries under great financial pressure as VAT has to be paid

within a month of the supply of a product, but the payment from dealers and retailers to whom the supply is made is usually received much later, sometimes never. So from all sides, it is the small manufacturers who are pressurized financially. ***Fifthly,*** this routine of paying VAT exposes the entrepreneurs to the lust and illegal desires of the corrupt customs officials every month making them vulnerable and scared. This harassment is one major factor which mentally disturbs innovative techno-preneurs and ultimately leads to the closure of such enterprises.
A VAT system can only work with medium or large scale industries which have fixed technology and fixed models of products, not for indigenous technology based light engineering and electronic industries.

8.2.3 Non availability of high quality raw materials

Many of the raw materials for light engineering and electronics sectors, particularly for the latter, are imported. Such imports have to be done in large quantities which is not possible for individual small enterprises. Usually these imports are done by bulk importers who tend to choose cheaper materials at lower cost in their business interest.

8.2.4 No priority claim in utility services

Electricity, Telephone and gas supply are the very basic requirements for the success of an enterprise. These utility services usually have a priority list of subscriber types to follow if there is a scarcity. Small industries are nowhere in these priority lists. Large industries, export oriented enterprises, even an individual who pays more than Tk.10,000 as income tax are listed as priority subscribers for Telephone connections, but not small industries. Of course availability of private mobile phone operators has reduced the urgency of telecommunication to some extent, however, these are still expensive to use and have limited access.

8.2.5 Harassment in the name of Labour laws

Since most of the light engineering enterprises cater to customer demands, giving a sort of service on demand, some of these have to keep open for long hours. Being small family-run units, they often work for long hours voluntarily, or with the consent of its workers, which is needed at the growing phase of such enterprises. Therefore many of the international labour laws are difficult to implement in totality. This opens up an opportunity for harassing such small enterprises by corrupt officials of the relevant Government offices.

8.2.6 Harassment by law enforcing agencies while delivering goods

Police constables, Traffic constables, village guards, in fact any person with an authority of the Government, even if they have nothing to do with tax collection, tend to take the pretext of Government's tax regimes to stop and check the movement of goods while being delivered, demanding 'bribes'. As mentioned above due to the suicidal tax and VAT policies of the Government, many of the small enterprises tend to avoid being registered with the relevant Government in order to survive, and this increases the scope for such harassment. Even if all documents are in order, they will ask for a 'bribe' to ensure non-harassment.

8.2.7 Marketing controlled by dealers

Marketing is usually done through wholesale traders and retail dealers who being in a better position, tend to exploit the small entrepreneurs in various ways. They do not pay the producers promptly, the producers are simply harassed time and time again. They press for cheaper and cheaper prices so that the producers become bound to supply lower quality products deliberately. This creates a bad name for the local products and the sector has to vanish eventually. As mentioned before small entrepreneurs do not dare to advertise and establish brand-names in the fear that the 'undesirable' demands from the tax officials would increase many times then, and the enterprise may have to be closed down altogether.

8.2.7 Corporate Income Tax

A small enterprise naturally has limited funds and could get much relief if it could invest all its profits to expand the business. The Government does not promote income tax waiver (Tax holiday) for such investments while tax concessions are there for building houses. Besides, a light engineering or an electronics enterprise has to spend a substantial amount to R&D which causes much financial pressure, but the Government does not have any tax incentive to support such efforts. The corporate income tax is very high and once a year an enterprise has to face a tax official, who has every power to harass the entrepreneur, and usually it is the normal practice. ***While tax holidays are being offered to lure rich and very large foreign investors, the Government seems hesitant in providing tax holidays to its small investors who could change the real picture of the nation.***

8.3 Challenges from international trade

8.3.1 Low tax in neighbouring countries

India has tax policies supportive of very small industries having annual turn-over under Rs.1 crore. They have ***no sales tax, no VAT, and no registration requirements***. Besides in light engineering and electronics they have almost zero import duty on machinery and raw materials and components that are not manufactured in India. Pakistan also provides similar facilities to such small industries. Because of regional and international trade agreements such products will enter Bangladesh at almost zero duty soon. Since there is no such tax waiver for the very small industries in Bangladesh, the production cost will be much higher and naturally the destruction of Bangladeshi small industries may be hastened after such agreements are made.

8.3.2 Dumping and unethical trade

It is not improbable that some products coming from some neighbouring countries are being dumped, i.e., exported at a price below their cost. These may also be produced by prisoners whose expenses are borne by the state besides huge export subsidies, thus making the local products uncompetititve.

8.3.3 Low quality of imported products

Sometimes low quality products are being imported, particularly in electronics, since there is no quality control for imported products in light engineering and electronics. Besides, consumer protection movements are not strong in Bangladesh, and consumers tend to believe anything that comes with a foreign name. On the other hand, for a locally made product to succeed in the market, it has to be of high quality and has to have proper guarantee. This also makes the competition difficult against such imported low quality products.

8.4 NBR - the major obstacle to small industrial growth

8.4.1 Absolute authority - leads to corruption

Under the present arrangement in Bangladesh the National Board of Revenue (NBR) is entrusted with all fiscal authorities of the Government - they prepare the budget and the fiscal policy, they collect taxes, and they also adjudge and punish tax evasion. To draw a simile, we may imagine what would happen if the police was entrusted with preparing criminal laws, arrest criminals, and adjudge & punish them. They would become like 'Gods' and that exactly has happened with the NBR. Prior to early nineties, Tariff Commission under the Ministry of Commerce used to prepare the budget policies, but now it vests with the NBR. In no developed country such absolute authority is vested on a single organization as it then becomes prone to corruption, and that exactly has happened in Bangladesh.

8.4.2 No Research Cell – policies made on an adhoc basis

The NBR has no research cell to collect, preserve and analyse data to determine the national development priorities in order to formulate fiscal policies. These are done by adhoc committees and it is very easy to influence such committee members into changing a specific tax policy in the micro level without drawing attention of others, but which may damage national interests. The example given before on Television assembly illustrates this point.

8.4.3 Not enough expertise

The products in modern days are highly technical in character, and the complexities are increasing day by day. It is not possible for NBR officials to understand the details of such complex technology and associated descriptions. Besides, it is also not possible for them to know what can be made locally or not, which is an important factor in deciding on tax policies.

8.4.4 Ant-Industry character

In the previous pages of this paper it has been described how illogical and anti-production tax policies taken by NBR have damaged light engineering and electronics industry in the country.

In the year 2000 when, as a result of lobbying by the author himself, and the presence of a NBR chief who reasoned well, the 2000-2001 budget speech proposed a simplification in the VAT payment scheme for the indigenous technology based electronic industries to eliminate the problems discussed above (Copy in ***Annexure-3***). This proposal allowed this industry VAT payment on a truncated basis, at a rate of 2.5% on the 'total sale value' rather than at the rate of 15% on the 'added value'. Such procedure already exists for traders and retailers of all kinds who have to pay only 1.5% tax on the total sale value. Unfortunately, the NBR never took any steps to implement this budget proposal in spite of persistent lobbying by the author and the stakeholders over the years. On the other hand within a few years time during that period the retail VAT on traders was reduced from firstly 2.25% to 2% and then from 2% to 1.5% and these were implemented immediately. This reveals a basic character of the NBR which is Ant-Industry.

8.4.5 Personal gains linked to this anti-industry character

As mentioned before, since the NBR has absolute power over all fiscal activities of the Government, therefore the cause of 'personal gains' always keep hidden behind framing of policies. The personal gains can be maximized if taxes can be kept abnormally high wherever possible. Then the entrepreneurs can be made to come to terms easily, i.e., they can be made hostages relatively easily. Since the traders are essentially rich in post colonial economies as ours, they can bribe the officials to formulate policies in their favour, which the small manufacturing entrepreneurs cannot. Since this puts the small industries into perennial loss, the tax officials appear as benefactors by asking them to 'cheat' the Government by producing 'falsified accounts' which they will certify 'in lieu of' of personal benefits. On the other hand if an entrepreneur shows the 'audacity' to pay proper taxes without satisfying the personal desires of the officials, they simply would file a case against him as a 'tax dodger' by claiming that he has falsified his accounts and has understated his sale volume. In Bangladesh context anyone would know the amount of money and harassment any appeal to higher authorities would involve in practice. Therefore an entrepreneur has no respite other than to concede to the corrupt wishes of the tax officials. Once he has done this he becomes a perpetual hostage since the tax official now surely knows that falsified accounts have been placed and can blackmail him whenever he likes. Thus *corrupt officials of NBR have a double incentive in formulating anti-industry tax policies – getting monetary gains from rich importers and traders of finished foreign products on one hand, and from the local small producers on the other*.

There is another aspect to this attitude. Small manufacturing enterprises usually are not well organized as barely surviving, they can hardly afford to attend meetings of the organization. Besides, they are also scattered geographically which makes it difficult for them to unite for a

common defensive programme. On the other hand retail traders are clustered geographically and can unite together easily. Therefore the tax officials seem to disturb them less and are happy to get whatever they wish to pay, which may also be the cause for bringing down the retail VAT to 1.5% only. Therefore small industrial enterprises remain as one of the major sources of personal extra income which the NBR officials would not like to slip away. This was possibly the reason behind non-implementation of the 2.5% VAT in 2000 because that would give a strength to the small electronics entrepreneurs who may want to pay that tax amount straight to Government without fulfilling the personal lust of the concerned tax officials.

8.4.6 Silent changes in the tax policies through SRO

It is a common practice for the National Board of Revenue (NBR) to change taxes at any time of the year through Statutory Regulatory Orders (SRO) of the President. While ***article 83 of Bangladesh Constitution says, "No tax should be levied or collected except by or under the authority of an Act of Parliament".*** This is also logical. A policy, which has been adopted through lot of groundwork and brainstorming in the Parliament, should not be nullified by a few people of NBR by submitting those to the President and getting them signed like other official documents. These changes also remain virtually secretive as these are not usually published or advertised in the newspaper. Basically it allows the NBR to change almost any tax policy in order to satisfy vested interests thus rendering parliament decisions on budget ineffective.

9. Recent developments

9.1 SME related activities, National SME Taskforce

Recently, International Development Agencies realized the importance of SME's in the Third World and through their initiatives the Government of Bangladesh is also taking up renewed interest in these sectors. An SME Cell was formed within the Ministry of Industries followed by a high powered National SME Taskforce in 2003, the latter comprising of members from the civil society and the Government, including the author. The Taskforce submitted its recommendations to the Government in 2004 most of which, except some fiscal recommendations has already been approved and are being acted upon. The approved recommendations have already formed part of the National SME policy and following these recommendations an SME Advisory panel has been formed having representation from both the civil society and the Government. This is expected to transform eventually into a more powerful body to be called an SME Foundation, which will look after the different aspects of SME promotion. However, the author feels that the part that has not been approved, the Fiscal related ones, are the most vital of the recommendations without which all other efforts will eventually become futile. This will be discussed in more detail later.

9.2 Some approved recommendations of the Taskforce

Some of the approved recommendations of the Taskforce that are relevant at this point are presented below, highlighting some of the points with a bold font according to the author's choice.

A. Booster Sectors:

For promotional support the following 11 booster sectors may be identified:

i) Electronics and Electrical
ii) Software Development
iii) Light Engineering
iv) Agro-processing and related business

v) Leather and Leather goods
vi) Knitwear and Ready Made Garments
vii) Plastics and other synthetics
viii) Healthcare and Diagnostics
ix) Educational Services
x) Pharmaceuticals/ Cosmetics/ Toiletries
xi) Aesthetically challenging designer products/ personal wear and effects/ jewellery

The list of booster sector may be reviewed every three years.

B. Preferential criteria:

a. The following preferential criteria be set for evaluating entrepreneurs
   ii) Successful track record as an entrepreneur.
   iii) Membership in traditional entrepreneurial groups.
   iv) Above average insider equity participation.
   v) Professional recognized certification of top management in relevant production skills.
   vi) Receiver of globally recognized quality assurance (ISO 9001 etc.)
   vii) High management capability and commitment to innovation (Technopreneur)

b. Some preferential criteria may be set based on the size of an enterprise – smallest getting the top priority.

c. Women entrepreneurs may be given preference in conjunction with the above criteria.

C. Credit Distribution:

a) **At least 80% of the total resources available be allocated to small enterprises, medium enterprises to get from the rest.**

b) Initially BASIC Bank may be chosen as the lead bank to disburse the project funds, later SMEF itself taking up the responsibility.

c) 10% of the available resources may be made into a Venture Capital fund to promote technologically challenging but viable innovative products, preferably given to Technopreneurs (technical product innovators turning entrepreneurs). The SME Advisory Panel/SME Foundation may be made responsible for its disbursement.

9.3 Rationale behind the highlighted recommendations above

The thrust sectors show that Light Engineering and Electronics related sectors have very rightly been given due importance, placing them right at the top of the list. The importance of these sectors has already been discussed in detail and is the main theme of this paper.

The preferential criteria for providing different kinds of promotional support gave due importance to a successful track record of an entrepreneur which was proposed by the present author. This is in contrast to many conventional Small Enterprise promotional programmes which aim mainly at new entrants with a capability of providing financial collateral only, ignoring entrepreneurs who are already into the game. Financial support in the form of loans will result in maximum utilization of limited funds, and at minimum risk, if these are given to small entrepreneurs who have already ventured out with whatever they could gather from own resources, and have created a successful track record of growth, at least over one or two years. It was felt that promoting such entrepreneurs will help them grow quickly which will act as an impetus for capable new entrants to invest and risk their own resources, the successful ones expecting Government support eventually.

It was felt that entrepreneurs with a high capability of both technological innovation and management capability should be given due importance. Being able to create and develop new ideas on products, production / process technology, and necessary training to workers, they create the nuclei of the much desired clusters of small industries, which are the elements of an industrial revolution. The Taskforce felt convinced by these proposals, initiated by the present author, and the arguments that were put forward in this regard.

There was also a strong argument to give maximum support to smallest of the small, and to reserve most of the available funds for the small enterprises rather than for the relatively larger ones among the SME's. The relatively larger ones are expected to be smart enough to organize supports from existing financial institutions through their established connections and familiarity with the type of Government machinery that exists and works in Bangladesh, which unfortunately, is not straightforward.

9.4 The unapproved Taskforce recommendations

As mentioned above some fiscal recommendations of the Taskforce, which were mainly initiated by the present author, were not approved. The author feels that these are the single most vital components of the recommendations in the context of Bangladesh, and are as follows.

A. VAT exemptions:

a. For Manufacturing SME's not under foreign joint venture, the following VAT exemptions be made (fixed investment implies exclusion of land and building):
   i) Total exemption if fixed investment is less than Tk.3 million.
   ii) 2.5% turnover tax if fixed investment is above Tk.3 million but under Tk.15 million.

b. VAT on a product at local production point cannot exceed that on the import of similar finished product. If the latter is changed at any time, the above condition be applied automatically.

B. Tax Holiday:

Tax Holiday may be given only to manufacturing enterprises with fixed investment under Tk.3 million, 7 years within Dhaka and Chittagong cities and 10 years at other places.

C. Tax Rate:

Total incidence of all tax-rates at import on raw materials cannot exceed 60% of that on finished imported products. If the latter is changed at any time, the above condition be applied automatically.

9.5 Importance of the unapproved recommendations

Inclusion of items 'A-b' and 'C' above on specific VAT and Tax-rate issues may appear as a surprise, these are issues which are naturally expected from any national Government, and in fact, these are implied in the broad general policies existing in Bangladesh. Why should these then form part of the Taskforce recommendations at all? Unfortunately, these had to be specified in order to counter the 'reality' in Bangladesh, where either such general policies are quietly forgotten, or are twisted in interpretation to serve vested interests. There are many instances where the tax policies are 'inverted' forcing the indigenous manufacturers to an uneven competition with imported finished products as has been discussed in a bit of detail in this paper before.

9.6 Harassment by officials, further justification for VAT & Tax waiver

The harassment situation has been discussed with emphasis in this paper before. To be pragmatic we should not expect elimination of corruption in the foreseeable future. Therefore instead of recommending such impractical goals the taskforce recommended a practical solution, that of total tax and VAT waiver for the smallest of the small enterprises. This will automatically remove the condition for harassment. The present author was responsible in proposing this recommendations too.

9.7 Possible role of vested interests in the non-approval

The author feels that there was a 'role' of vested interests in the non-approval of the fiscal recommendations of the SME Taskforce. ***Annexure-4*** shows a news item published in a prominent daily on January 6, 2005, which says in bold headlines that a Cabinet Division meeting held on January 5, 2005 under the chairmanship of the Finance Minister approved these recommendations of VAT waiver and Tax holiday, detailing them in the news. However, the Ministry of Industries, the authority to take action on the approved bills, did not get any information till a few weeks later, as the author found out on enquiry. The letter to the Ministry of Industries differed drastically. There it was mentioned that the Cabinet Committee in a meeting held on January 21, 2005 has approved all recommendations of the SME Taskforce except the fiscal ones. No VAT or tax waiver would be given to the small enterprises as recommended. The author speculates that after the news item was published, vested interests influenced the Cabinet Division from sending the approval note to the Ministry of Industries while they persuaded the Finance Minister to retract the decision in another meeting. However, this 'official' decision was not given out to newspapers and ***the public has been apparently 'bluffed' into believing that the small industries have been given a lot of incentives and facilities, but they could not succeed due to their own fault.***

9.8 Attempts to modify approved SME policies

As gathered from knowledgeable quarters, some interest groups are active in changing the SME policy, particularly the one related to the limit of investment as defined for a small industry, which they want to increase. This means that even larger enterprises want benefits which are earmarked for the small enterprises. If we analyse the list of benefits of the defined 'small' industries, the main benefit the larger ones would be after is a share of the funds specially allocated for this sector to be distributed as loans. The present definition of a small manufacturing enterprise, according to the approved policy based on the SME Taskforce recommendations, is a fixed investment limit of Tk.1.5 crore (Tk.15 million) excluding land and building. In the present context of Bangladesh an enterprise, which is already in the higher bracket of this investment limit is supposed to be established well with good links with the Government machinery. They can manage to go around typical bureaucratic obstacles and are smart enough to get loans from conventional banking system. Therefore there is no point in increasing this limit further. Keeping the ceiling of investment low will also enable a large number of enterprises to get the benefit of the limited funds thus addressing the goal of proliferation of such enterprises. If the ceiling is increased, the larger ones will grab the lion share of the allocated funds leaving very little for the unprivileged 'smaller' group which was really the target of the whole exercise. Besides, whenever special financial incentives in the form of loans or subsidies are offered, opportunity hunters grow to funnel out the funds for personal gains. This fear of vested interests have been emphasized by the present author at several places of this paper and is an important issue to be considered while making policies.

The SME Taskforce recommendations, if approved in its totality, could give the country a renewed start. It is unfortunate that the most important ones, the fiscal recommendations, were not approved. The author feels these should be approved immediately. Unless this is done all other efforts and expenditure will be rendered useless.

10. Experience of neighbouring countries

10.1 Indian experience

Having the same colonial past and similar cultural traditions, India also faced similar obstacles involving Small Scale Industries (SSI) and could identify some of these issues decades ago and brought in drastic measures that favoured the SSI's. Their studies showed that wherever tax officials made frequent visits, SSI growth declined while it increased wherever the visits were less frequent. Since 1978 they started giving tax reliefs in various forms to the SSI's in phases. As from the year 2000, for manufacturing enterprises with a ***yearly turn-over of up to 1 crore rupees, Government Registration is not mandatory*** and there is absolutely ***no sales tax or excise duty to pay***. Now nobody can harass them by invoking the issue of either Government registration or tax evasion. Furthermore, to relieve even slightly larger enterprises from such harassments, ***a tax official cannot visit an enterprise, which pays annual taxes up to 10 lakh rupees, without permission from higher authorities.*** What benefit did India reap from such policies? In 1999, there were 31 lakh small industrial units, increasing from about 19 lakh in 1991. Between 1991 and 1998, this sector generated 42 lakh new jobs while the entire organized industry and the Government combined created only 14 lakh (source: India Govt website, ***Annexure -5***). In 2000, small industries contributed to 40% of the gross value of output in the manufactured sector and 35% of total exports.

Among its other efforts India also organised a bank specially to provide loan to SSI's. Recently, a person with informed knowledge acknowledged that SIDBI has not been very much of a success. This seems to echo the point the author raised before that loans are not a big factor for small industries.

10.2 Thai experience with tax and loan

Thailand's Government website gives details on the results of a survey on small enterprises recently. Taxes are not apparently that much of a problem for small industries. The author thinks this may be due to the fact that Thailand has always been an independent country. Therefore there has been no tradition of a colonial power trying to destroy the local industries through tax inversion. The reasons that most of the small enterprises pay their business tax promptly is the low rate, compared to that existing in Bangladesh. The business tax, which poses as the highest burden, varies between 1.5% to 7%. In Bangladesh VAT on every product have to be paid monthly at 15%, and at the end of the year, a corporate tax of 45% has to be paid by those that are not registered as listed public companies. Even then, for the small enterprises some harassment and 'bribery' by tax officials are present in Thailand.

Regarding bank loans, the survey found that it is the larger enterprises which are interested in loans. Small entrepreneurs almost universally got the funds from own resources, and from friends and relatives – again supporting the contention of the author.

11. Recommendations - removal of obstacles for progress

11.1 Fundamentals

11.1.1 Nurturing the 'baby plant'

We have to remember that small enterprises are like baby plants growing up. We have to 'water' this plant, provide necessary 'nourishment' and protect them from the onslaught of destructive elements. We should not expect anything in return at this stage. When the plant will grow to become a strong tree it will not need any further assistance to survive, but will provide a lot of services in return, including taxes – 'official' and 'unofficial' if need be. Even if we shake its leaves off, or break off its branches, it will still survive and continue to grow and serve. On the other hand if we want services from the baby plant right from its inception, break off its leaves and branches, it will simply die and will not be able to give the great services that it has the potential of rendering.

11.1.2 Nurture technology innovation for enterprise

We have to nurture indigenous efforts in technology innovation because that only can give us the edge in competition in this modern world in the long run. Exploitation of cheap labour can only be a stop-gap arrangement as mentioned before, for immediate relief from dire poverty, but we should dedicate our maximum possible effort behind developing this technological capability in enterprise, particularly in the light engineering and electronics sector.

11.1.3 Deregulation of the smallest enterprises

As discussed in a bit of detail earlier, any regulatory requirement of the Government, however small and simple, will give the opportunity for corrupt officials to utilize it to their own personal gain, and we may not see an end to it in the near future. This puts us in a dilemma. For good administration any Government should know what its people are doing, it needs money for its sustenance, and also it should have some degree of control over the activities of the people. On the other hand the people who are assigned these jobs by the Government act immensely powerful following the colonial mindset which still pervades the society and which the 'democratic Governments' under the present partisan system find favourable to their interests. The lack of education and awareness of one's right, and lack of proper policing and justice have made the situation worse. The author feels that weeding out corruption is a far-fetched programme, and under the present situations of the socio-political system, we do not see a possibility in the near future. So to be pragmatic, we have to design a system for promoting and nurturing small enterprises taking corruption among Government officials as granted.

The larger enterprises are affected less since the amount of 'bribe' to be paid constitute a small fraction of their income. On the other hand, for the small enterprises, even a 'minimum demand' may become a burden too great in comparison to their earnings. Therefore what we need is shielding the small, the starter enterprises from possible harassment of corrupt Government officials. That is for such starters, all Government control should be relaxed as much as possible. They may be brought under some regulation and taxation when they grow beyond a certain size. This will allow the starter enterprises to proliferate and grow contributing indirectly to national economy which would be no less, in fact would be many times more, than what the Government is getting at present from the struggling small sector. Besides when these enterprises would 'graduate' to larger establishments they will contribute to a vigorous growth in national GDP, and will be able to pay the Government the required taxes, much in excess to what the Government is getting now.

This was the justification behind the SME Taskforce recommendation giving VAT and tax waiver to small manufacturing enterprises whose fixed investment falls below 30 lakh taka, but which the Government unfortunately, did not approve of. From the hesitation of the Government in approving such facilities to the 'smallest of the small' the author would like to

propose a reduction in this ceiling further, as presented later. To alleviate Government fears of abuse of such facilities, disincentives will be also proposed. Of course attempts should be there side by side to rectify the administration, to remove the colonial mindset, and to remove corruption from the Government officials.

11.2 Make small enterprises profitable through tax rationalization with imports
- will tap huge domestic investment and generate employment

For any enterprise to survive and succeed, the bottom-line is that, it has to earn a profit. In Bangladesh this has not been the case for most of the small industries as discussed before. The tax policies should be made so that local products can compete with the imported finished goods, at least on a level playing ground. The Government should cease to think that the country should be run by taxing local production while allowing tax concessions to imports, on the pretext of giving a low price to the consumers. This destroys the basic requirement of the survival and growth of local industries, without which the county's GDP and income is going to fall. If this continues, the Government, in the near future, will not be able to even fund the import of the products which it wanted to give to its consumers by reducing tariffs in the very first place.

Making the small industries profitable will bring in domestic investments of such amounts that the policymakers would not be able to imagine. Just to give an example, every year more than two hundred thousand young people try to go abroad in search of jobs, and each of them pay anything between Tk.200,000 to Tk.1000,000 to agents for this purpose. Taking an average on the low side, about Tk.300,000 per person the total comes to about US$ 1 billion per year! Had the small industries been profitable, much of this money would have been invested in this sector.

Viewing from another angle, comparing the populations of India and Bangladesh, we should have more than 500,000 (five lakh) small industries now (India had 31 lakh in 1999, and Bangladesh has about 60,000 at present) had we had a similar industry friendly policy and environment. Assuming each unit to have an investment of about Tk.5 lakh, the total would come to about more than US$3.5 billion, a colossal amount!! We do not need to run after large foreign investors bringing in only a fraction of the above amount and employing only a few thousand people.

11.3 No finished goods to be imported at zero duty and VAT

The Government does not know what the capabilities of its people are, what they can make and what they cannot. Therefore to allow them the opportunity to produce finished products locally, the general policy should be:

a) Not to allow the import of any finished product at zero tax or VAT however important that product is. If necessary the Government can pay the duties back to certain organizations which it wants to provide with special support.

b) The Total Tax Incidence on the imported raw materials and components of the same product that are not made locally should be significantly less to allow a competitive edge to local production.

c) If the above is not affected in certain cases, the importers should be able to import raw materials of the same product paying not more than 60% of the duty on the similar finished products pending its dissolution in a court of appeal.

If the above policies are not taken no producer will even attempt to make such things locally. As in the case of computers, Indian entrepreneurs have already started making a local brand, *'Amaar PC'*, taking opportunity of the higher taxes on its import (when Bangladesh made import duties on computers and UPS's zero in 1998, India had more than 40%. Later they

reduced the taxes somewhat, apparently to discourage smuggling from Bangladesh). On the other hand, the Bangladesh Government, through the above mentioned concession of duties on computer and UPS import that is continuing since 1998, has destroyed the local UPS industry which was growing. As long as such duty structure continues, no one will ever dare to produce a computer or its parts locally. The same goes for the electronic products needed for a Solar Photovoltaic Generator which are coming at zero tax and VAT since 1998. Therefore the Government needs to consider this recommendation seriously and immediately.

11.4 Defining Micro and Mini Enterprise (MME) in the manufacturing sector

Based on the SME Taskforce recommendations the Industrial policy 2005 defined Small Manufacturing Enterprises as those having a fixed investment of Tk.1.5 crore (Tk.15 million) excluding land and building. In the present Bangladesh context even this amount is pretty high considering the large number of small enterprises that the nation should promote with its scarce resources (but some interested quarters are trying to increase the ceiling even further, as mentioned before). An enterprise whose investment is even one third the above ceiling can be considered to be smart and able enough to steer through the bureaucratic system with relative ease. To get loans and other facilities it can negotiate straight with banks under normal procedures, and it can talk to various Government bodies directly or through large business chambers. They can afford paying extra expediting expenditures needed in our corrupt environment. Therefore the very small ones compared to this ceiling need the main focus of the Government for promotion who have no option other than closing down whenever they become 'visible' to the corrupt officials of the Government machinery.

The author would like to define Micro and Mini Enterprises in the manufacturing sector and the deregulations to be given to each of them as follows. Manufacturing enterprises are to be defined based on *fixed investments, excluding land and buildings*, as follows:

a) Micro Enterprise: under 1.5 lakh taka (Tk. 0.15 million)
b) Mini Enterprise: under 15 lakh taka (Tk. 1.5 million)

Together with existing small enterprise ceiling of Tk.1.5 crore (Tk. 15 million), the suggested definitions makes a logical progression with a ten times factor each.

11.5 Incentives & Deregulations, and protection from abuse

The definition and proposed incentives and disincentives are summarized in Table-11 below. As mentioned before, the policies have to be made pragmatically incorporating the existence of a corrupt environment which is not envisaged to end in the near future.

For the very small enterprises even Trade License is a difficulty as the 'bribe' amount is a burden on them. This was also expressed in a meeting of 'Palli Karmo Sahayak Sangstha – PKSF' (Rural job prmoting Corporation) by field workers of NGO's. The enterprises in the higher categories in the above table are expected to manage this extra payment for Trade License. Both the Micro and the Mini categories have been proposed to be freed from all other requirements – registration, Production VAT and Corporate Tax. Regarding labour laws these two smallest categories should be freed from their compliance, but they should be educated and motivated, possibly through their associations, to implement such measures as far as possible voluntarily. The requirement of VAT and Corporate tax are to be completely waived for the Micro and Mini enterprises as the reasons have been discussed before in detail. For the Small enterprises above the Mini-category, a 2.5% VAT on total turnover has been prescribed in order to simplify the payment. The idea is that normal VAT of 15% with rebate for previously paid VAT should be applicable for only the larger Medium and Large industries who are expected to import their own raw materials. Tax holiday has been proposed for 10 years from the day of registration as a Small enterprise, even if it is an old enterprise of a lower category, either Micro- or Mini-, 'graduating' into this higher Small category. Growing from a Mini- to a Small Enterprise has many new challenges to overcome, as an enterprise has to make a 'jump' to a

newer scale it was not used to before. It has to target a countrywide market, has to employ and manage a much larger workforce, has to advertise extensively, has to open show rooms and appoint distributers countrywide. Therefore it has to reinvest almost all of its profits and therefore this tax holiday has been proposed.

Table-11: Proposed incentives and disincentives for MME & Small enterprises

Proposed Category	Ceiling of fixed* investment, Million taka	Trade License Require-ment	Registration Require-ment	Labour Law Require-ment	Product-ion stage VAT	Corporate Tax	Institutional Loan **(dis-incentive)**
Micro	0.15	No	No	Motivate	Nil	Nil	Micro-Finance from NGO's
Mini	1.5	Yes	No	Motivate	Nil	Nil	None
Small	15**	Yes	Yes	Yes	2.5% on turnover	Tax Holiday for 10 years#	Yes

* Fixed investments, excluding land and buildings
** As defined by Industrial Policy 2005, based on SME Taskforce recommendation
# To be counted from the day of registration as a Small enterprise if 'graduating' from a lower category

Finally to prevent abuse of such facilities and concessions, the author has proposed a 'disincentive' in giving loans to Mini-enterprises only. Micro enterprises usually receive funds from NGO's which should continue. The Mini-enterprises have been barred from getting any institutional loans, that is from any nationalized or private financial institutions. The idea is that they will have to commit their own resources if they have the confidence. This is mainly to promote techno-preneurs who are the people behind an industrial revolution as discussed before. They usually are innovative and do not require much funds if they are really capable and innovative. The freedom from tax requirement will give them a free uninhibited environment to grow while this disincentive will discourage opportunity hunters from getting such facilities. Of course, they can receive loans from individuals and private firms if need be, but have to register as a 'Small Enterprise' with all its ramification if they want any institutional loan. This disincentive has also been proposed to make it acceptable to the Government since the nation is not risking any money on these Mini-enterprises. It is a ***"No tax, no loan"*** scenario for the Government to feel well, while it is a ***"no loan, no tax"*** scenario for the entrepreneurs to feel secure against coercion and harassment.

The author feels that most of the problems obstructing the growth of small enterprises, particularly in the light engineering and electronics sector would be solved automatically if the above proposals are accepted and implemented in totality.

At this stage of entry the risk is too high and it is not wise to provide loans to these starters from public funds. Nor is it wise to push a person to technological innovation who does not have it naturally. It is not possible to push an entrepreneur to success who does not have a natural ability to face challenges, who does not have the basic capabilities of technological innovation, who does not have the natural ability to understand his environment and surroundings needed for successful marketing, who does not have the ability to maintain good human relation and managerial ability to run a successful business. One has to have the basic pre requisites first and the ability to learn things through doing. Incapable ones will naturally drop out. Easy availability of loan from public funds and a 'turn-key' technological solution at this stage often goes against the enthusiasm to face challenges as well. Only when an entrant is successful over

some years and shows the ability to grow successfully that he will be able to utilize extra funds, or technology relevant to his requirement, if provided to him.

11.6 Relaxation of tax registration, etc., for membership in Associations

To become a member of any business chamber or association, there is a Government requirement for its members to have a Trade License and be registered for a Tax Identification Number (TIN). Due to reasons discussed in this paper, the majority of the indigenous small (particularly MME – as defined here) do not get registered for TIN. As proposed above the Trade license and Tax requirements have been proposed to be waived for the very smallest – the MME. Therefore such requirements should be relaxed for MME's as appropriate to become members of any business or trade association.

11.7 R&D support through tax relief

Sometimes policymakers talk of giving subsidies to promote R&D. The author has reiterated this before as well that any grant or subsidy are grabbed up by opportunity hunters, they do not reach the deserving. Therefore, the VAT and Tax relief proposed above should be also seen as covers for R&D expenditures.

11.8. VAT collection at retail point

In order to increase revenue and to sustain it, the author feels that the Government would do better in concentrating on VAT collection at the retail point only, the last point in the whole supply chain, where direct cash inflow occurs from customers. The hypothesis of increasing efficiency by collecting VAT at all points of intermediate transaction may only work in a corruption free transparent administration which is still a far cry in our environment. Besides, this hypothesis applies to large industries only which have set products, set technologies, and set sources for raw material procurement. On the other hand Small industries (which includes Micro and Mini as well) are the harbingers of new ideas, products and technologies, providing the driving power for the future and forming the ***backbone of a nation*** and they are not expected to be efficient in financial terms.

From the point of view of collection success which is not satisfactory at present, the author feels that rather than diverting attention to many points of collection, each of which presents formidable challenges, it is worth concentrating at a single point, the last retailing point as mentioned above. Creative ways are needed for collection that suits the character and nature of the native population better. The author proposed a retail VAT collection based on a 'group' model[6](***Annex-6***), which has been used successfully in microcredit. The author suggested forming groups of 20 or so retailers within a neighbourhood, entrusting themselves with the collection of VAT on a daily or weekly basis (not monthly or yearly) and depositing the amount in a prescribed bank account in the locality (not at any remote branch or at a central bank). The trust should be countered with a severe punishment for defaulters, but which should have to go through the normal judiciary system giving a chance for self-defense. The existing 1.5% VAT is not a big amount for any trader if it is collected on a daily or weekly basis. The innate urge to appear as a good human being to neighbours, and mutual social pressure would provide the drive for payment of VAT. ***One has to appreciate the subtle strength of trust, which is formidable and one has to take a risk to see it function***. Once it gets going the whole job of administration becomes smooth.

11.9 Loans without collateral

In this proposal Institutional loans have been proposed for manufacturing enterprises for the 'Small' and larger categories. However, the collateral requirement is a big hindrance, particularly for the techno-entrepreneurs. There should be some mechanism to consider the technical ability and relevant educational qualifications, entrepreneurial track record of growth,

[6] K S Rabbani, "VAT collection ideas" Published in Financial Express, Bangladesh, Sept 1&2, 2004 in two parts under slightly different headings.

goodwill, etc. in monetary terms to serve as collaterals. As discussed before, a technical innovator who has a track record of entrepreneurial growth at least for two years makes a good candidate for loans, and the rate of success would be much higher than providing loans just based on collaterals following conventional methods.

11.10 Selection of the right entrepreneur through *Scouting Ant Model*

In order to select good candidates for loan, the 'Scouting Ant Model' proposed in this paper earlier can be used in addition to the above mentioned technological innovator turned entrepreneur. This will ensure a minimum risk for the scarce public funds.

11.11 Setting up local R&D, QC and business support facilities

For new product and process development, and for Quality Control (QC) the Government and Semi-Government agencies should be put to work. Organisations like Bangladesh Industrial Technical Assistance Centre (BITAC), Atomic Energy Research Establishment and Atomic Energy Centre, Bangladesh Council of Scientific and Industrial Research (BCSIR), Universities and the Polytechnic Institutes should be motivated in taking up programmes to provide technical assistance for Micro-, Mini- and Small entreprises, particularly in the light engineering and electronics sector, may be in return for a reasonable fee. It is of interest to note that BITAC and BCSIR was instituted to help industries, but the schemes did not work out so far as the major thrust of the Government was large industries or export oriented industries. These organizations can yield much better results if they are targeted to such small enterpries employing indigenous technology. Private R&D, QC and Business support Service Centres should also be promoted, particularly if organized by small manufacturers' associations. The Government may provide support such initiatives by respective manufacturers' associations.

11.12 Procurement of quality raw materials

Associations of light engineering and electronics small manufacturers should be encouraged to organise import of quality raw materials for their respective industry jointly. The Government may provide LC and other support services to such joint imports.

11.13 Co-operative Marketing, exhibitions

Wholesale dealers and retailers exploit the small enterprises. Therefore such small manufacturers' associations should be encouraged to organise co-operative marketing starting from local initiatives, then combining all of them for a countrywide initiative. They should organise exhibitions centrally and regionally and the Government may provide support to associations for such activities.

11.14 Training of human resource, short term, long term

There are already established vocational training institutes and Polytechnic Institutes to prepare manpower for such small engineering enterprises. If such industries proliferate through removal of obstacles as suggested, these institutes will automatically expand their operations. For the long term, the Government may consider appropriate curriculum in the general education in the secondary level, so that school dropouts may opt for such small engineering enterprises.

11.15 Quality Control for local and imported products, and anti-dumping

Many imported engineering products, particularly in Electronics are of less than standard quality. Some even lie about their specifications thus cheating consumers. Such practices are also sometimes done by local manufacturers. As a first step, steps should be taken to ascertain that all products, whether local or foreign, write their full specifications in an accompanied brochure and if independent tests find out disagreement between that claimed and the actual performance, actions should be taken against marketing of such products. The respective manufacturers' associations should take initiatives in this regard. Cases to take up Anti-dumping measures should be prepared by such organizations and presented before the respective Government body for taking action.

11.16 Go slow in international trade contracts (BIMSTEC, SAFTA, WTO)

As our small manufacturing enterprises have not got the Government support that it needed over the last decades, while some neighbouring countries have gone much ahead through their pragmatic policies long before, our manufacturers will not be able to compete equally with those from the neighbouring countries if all the regional trade contracts are made and implemented immediately. We should ask for some more time to get ourselves prepared so that we can play an active role in this new collaboration, rather than remaining as an onlooker and consumer – which will eventually marginalize the whole nation.

11.17 Priority in utility services (Electricity, gas, etc.)

Micro, Mini and Small manufacturing and marketing enterprises should get topmost priority in all utility services like electricity, gas, telephone, water & sewerage etc. and this should be communicated to all concerned.

11.18 Government Procurement, relaxing for registration

A policy possibly still exists which bounds a Government or Semi-Government organization to purchase a locally made product if it satisfies the minimum quality requirements, and if the price is less than about 120% of the lowest foreign bidder in a tender. However, it is hardly implemented now. A reminder should be sent to all concerned authorities together with advertisements in newspapers for its effective implementation and legal actions taken if decisions are taken otherwise. However, there have been instances where corrupt officials of certain organizations abused this policy by placing tricks with the clauses, and asking for packaged offers of many items rather than of individual items. This barred the small enterprises to participate in such tenders and personal gains were sought after through syndicated offers. Therefore all such tenders should never be packaged so that even a small firm may offer prices for individual items in a competitive way. According to this proposal since the Micro and Mini manufacturing enterprises are to be freed from any tax or VAT, they should be allowed to participate without such documents, but VAT and tax may be deducted a source, as is the current practice.

11.19 Reconstitution of NBR, dispersal of authority

This is a very important recommendation. As mentioned before, NBR having authority over all fiscal activities of the Government behaves as a Semi-God, which can therefore easily be seized by corruption. Therefore the authorities presently vested with the NBR need to be dispersed. In fact no developed country has such authorities given to one single institution! Besides, the main mental make-up for NBR officials is maximization of tax collection, not development nor promotion of industry nor trade in the country. It is easy to envisage what would happen to a business firm if the Accountant is given the upper hand over the Marketing department and the Managing Director, as the mental makeup for each is different. For the country's development we need industrialization, particularly in the small levels, but that is not a headache for a person whose prime target is to collect as much tax as possible. The author proposes that the following measures be taken:

a) All budget and tax policies should be formulated by a separate body, completely isolated from the NBR, preferably under the Planning Ministry. Since it has to take care of the requirements of all other ministries like Education, Commerce, Industry, Agriculture, and so on, therefore it cannot be vested to one of these ministries only as used to be the case earlier when Tariff Commission under the Ministry of Commerce used to do the job.

b) The above body should have adequate research cells with data archiving facilities and should have manpower with various specialities, particularly in appropriate branches of technology. Besides, representatives of manufacturers' and traders' associations and subject experts from the civil society should be incorporated in the policy-making procedures.

c) The NBR shall have the responsibility of collecting taxes and filing cases for tax evasion to the appropriate courts, as suggested in the next proposal. Of course, NBR like all other organs of other ministries will send their opinions and feedback the concerned body responsible for budget and tax policy formulation.

d) All cases of tax evasion as filed by the NBR will be adjudged by an independent judiciary. To expedite such cases a separate branch of the judiciary may be earmarked for such purposes.

11.20 S&T and Industry Ministry to provide Venture capital.
Grants do not produce financial discipline and do not evoke the challenging mentality in an entrepreneur. Therefore the above ministries jointly may offer venture capitals to technology innovators with proven innovative technology having potential for commercialization.

11.22 Frequent changes in top Government positions should be stopped.
Frequent changes in the top positions of the Government departments cause serious harm to the national development programmes. Above the rank of a Joint Secretary, officals should not be transferred to other ministries as far as possible.

11.23 Others covered by SME Taskforce recommendations
Most other medium term and long term recommendations are covered by the SME Taskforce recommendations. Annexure 7 copies the brief summary (precis) of the report.

12. Last words
Proliferation of MME's throughout the country is the only way that we can reduce poverty. There is no other way out. People have to be given the right environment where they themselves can fight poverty using their own intellect and skills, and where no one with the authority of the Government is going to stop them in this endeavour. In fact the Government does not have to spend any money at all for poverty alleviation. ***All it has to do is to simply waive the tax and VAT on MME's and publicise the decision.***

Will it reduce Government earnings? At present the Government gets very little tax from such MME's as they have not proliferated, so waiving such taxes will have negligible impact on the net revenue. On the other hand the spectacular growth in MME's these measures are expected to bring will trigger a vibrant economic growth which will automatically increase the revenue earnings manifold, create employment, and will take people out of their poverty, and top of all, will allow the nation to stand on its own foot with dignity. ***Basically the Government does not need to promote MME's, all it has to do is to see that it does not pose an obstacle itself. The ingenuity and motivation of the people will do the rest. Well, to help, the Government can improve communications, ensure supply of electricity and gas, improve the law and order situation, and provide good education giving emphasis on science and technology, and that will create the magic!***

Annexure - 1

Light Engineering and Electronic items produced in Bangladesh

(at least prototypes are ready)

Mechanical

Conveyance:

1. Bicycle or parts
2. Rickshaw
3. Motorcycle/ 3 wheeled vehicle assembly, manufacture
4. Bus - body making
5. 3 wheeled village van (Nasimon) using shallow pump engine
6. Boat drive using shallow pump engine
7. Metallic boat/river vessel/ motor launch building
8. Railway spares (track sleepers, track shifter)
9. Motor vehicle, 4 wheel
10. Motor vehicle spares, fenders (bumper), silencer (exhaust), filters

Construction and industry:

11. Iron grill/Fence (workshop, on order)
12. Concrete mixer machine
13. Brick crusher
14. Aluminium window and door frame
15. Machine tools
16. Injection molding machine
17. Dies and molds
18. Industry spares (Jute, Textile, tea, leather)
19. Metallic parts of other products (cabinets of electronic items, electrical switch, etc.)
20. Hand loom/power loom
21. Paper cutting machine
22. Plastic spares/parts
23. Poultry industry items (feeder, etc.)
24. Sewing/Embroidery machine
25. Metallic water tank
26. Solar water heater
27. Finishing industry (paint, electroplating, powder coating, etc.)
28. Sheet re-rolling
29. Foundry
30. Rod re-rolling
31. Wire drawing

Domestic:

32. Hand water pumps (Tube well)
33. Gas cooker/hood
34. Metallic Utensils (steel, aluminium, copper alloy)
35. Special appliances (barbecue, grill)
36. Metallic racks/ shelf/boxes
37. Steel safe
38. Metallic (steel) furnitures
39. Tricycles, etc. for children
40. Bathroom fittings (taps, cocks, etc., not pipes)
41. Solar water heater

Agriculture:

42. Power tiller assembly
43. Indigenous appliances
    a. seeder
    b. weeder
    c. plantar
    d. sprayer
    e. water pump, human driven
    f. water pump, animal driven
    g. water pump, power driven

Medical:

44. Mechanical aids (Crutch, walker, commode chair, etc.)
45. Artificial limbs
46. Hospital Beds
47. OT lights, etc.
48. Throat Suction devices
49. Baby delivery suction cups & devices

Electrical

Conveyance:

50. Front, back and internal Lamp covers
51. Fans for buses

Industrial:

52. Electrical Welding machines
53. Plastic Injection molding machine (manual)
54. Transformers, large & medium (not for electronic apparatus)
55. Control systems (temperature, speed, etc.)
56. Contactor refurbishing
57. Porcelein Bridge
58. Main switch
59. Distribution boards
60. Electric iron (cloth iron)
61. Electric soldering iron
62. Electrical cables
63. Transformer wires (chemically insulated)

Domestic:

64. Energy meter
65. Distribution board
66. Switch, plug, extension cord
67. Fan - ceiling, table, exhaust
68. Light fittings
69. Refrigerator
70. Water heater
71. Flourescent light ballast, non-electronic
72. Fan and lamp regulator, non-electronic

Electronic

Industrial:

73. Transformers (small, for elelctronic apparatus)
74. Electric Energy meter testing (Computerised)
75. Area of Hide meter (Computerised)
76. Electronic Score board (Computerised)
77. Electrical switch Contact Resistance Meter
78. Voltage Stabiliser (including microprocessor controlled)
79. Voltage Protector
80. Computerised line voltage monitor
81. Computerised tester for UPS/IPS switching
82. Microcontroller programmer
83. Conference system
84. Traffic light (microprocessor controlled)
85. Taxi meter (microprocessor controlled)
86. Cellular phone terminating device
87. Automatic night light switching (light sensing)
88. pH-meter
89. Conductometer
90. Radiation Survey meter
91. Metal detector (Security)

Educational:

92. Electronic trainer boards
    a. Linear
    b. Digital
    c. Microprocessor/Computer
    d. Radio receiver
    e. Television receiver
93. Computer Interfacing including A/D conversion training
94. Temperature controlled heating systems for research
95. Assorted laboratory equipment

Domestic:

96. Radio/Cassette recorder assembly
97. Television assembly
98. Energy meter, eleltronic
99. Voltage Stabiliser
100. Voltage Protector
101. Water pump controller
102. Audio Amplifier, Public Address systems
103. Battery back up ac power systems (IPS, UPS)
104. Emergency light
105. Solar Photovoltaic equipment
106. Fan and lamp regulator
107. Electronic switcher (ballast) for flourescent lamps
108. Electronics for Compact flourescent lamps
109. Low voltage dc power supply
110. Automatic evening security light switching (light sensing)

Medical:

111. ECG Monitor (Computerised)
112. EMG Equipment (Computerised)
113. Lungs Spirometer
114. Muscle and Nerve Stimulator (for Physiotherapy)
115. Iontophoresis Equipment (for therapy for excessive sweating)
116. Centrifuge
117. Water bath
118. Colorimeter
119. Culture oven

Annexure -2

Rationale for VAT waiver for engineering based enterprises:

There are several factors which justifies total withdrawal of factory VAT for locally engineered products, specially in Electronics.

1. All small light engineering and Electronics enterprises purchase their raw materials and components from bulk importers who pay 15%VAT at import and again 1.5% Retail VAT, which is estimated on the basis of a 10% value addition at retail sale. Tax laws prohibit claiming of VAT rebates on commodities for which 1.5% Retail VAT has been paid. Now because of the above situation the small manufacturers are to pay full 15% VAT on the above raw materials and components at the production stage where they cannot claim any rebate on these items. Thus effectively more than 30% VAT is being paid against imported raw materials and components which increases the cost of production significantly. Even if the component traders are required to provide import papers to the manufacturers, it is not practical since a small entrepreneur purchases only a small amount of items at a time, which may again consist of components imported at different times with different batches.
2. One of the foremost arguments in favour of VAT at production point is that it stimulates efficiency. Since the small industries based on locally engineered products carry out continuous R&D and form the experimental laboratory for the industrial growth of a country, it is unwise to push them for efficiency. If it is done they will simply have to drop out.
3. Having a technological capability an electronic enterprise caters to various customer requirement continuously. So the models they make of a particular product are almost unlimited and varies day to day. It is virtually impossible to bring such a manufacturing method into the existing system for VAT registration of products, which require pre-registration of models, their component list, prices, etc. Besides, the practical impediments that arise due to a corrupt system of administration in our country creates an almost insurmountable obstacle through this process.
4. A single electronic product will need almost a hundred components whose price and quality may vary in each procurement. Even a small enterprise needs to have the capability of making dozens of such products to survive, making small numbers of each item. Enlisting such quantity of data in VAT procedure requires employing qualified and efficient accountant which is not possible for any small enterprise. Essentially it brings in extra financial expenditure, which itself is a burden and punishment for a small enterprise.
5. Money is not immediately transacted in a producer to wholesale, or producer to retailer transaction, but the producer has to pay VAT to Government immediately. This puts the producers into immense financial pressure. At the end a producer does not get the total price from the supply, but VAT has to be paid. So a producer loses on both counts and his cash flow suffers heavily.
6. In India for a revenue limit of Tk.1crore per annum (for the small industries sector) all Excise duties are exempted. Because of SAFTA and BIMSTEC agreements products made there under such facilities will be imported at very low or negligible duty and will compete better against our products, so eventually we shall see the doom of our small industries if VAT at present level continues.
7. The electronic sector has been particularly affected because of zero import duty and zero VAT facility given on Computers and Photovoltaic Generators since 1998.By interpreting these descriptions to advantage, almost all electronic products made locally are being imported at the above concessionary rates. If VAT is waived at import for a product, there is no justification for charging VAT on the production of the same item.

MINISTRY OF FINANCE

ANNUAL BUDGET

2000 2001

BUDGET SPEECH

SHAH A.M.S. KIBRIA
FINANCE MINISTER

(PART II)

DHAKA

25th Jayistha, 1407
8th June, 2000

Annexure-3

Annexure – "GHA"

5. Proposed truncated base value :

85.04	UPS	Total sell value	2.5% fixation of tax on the basis of truncated base
85.07	IPS		
85.34	Electric goods other than television, VCR, VCD		
85.37	Voltage Stabilizer, Voltage protector/Guard		

6. Proposed tariff value :

a. Vessels designed for the transport of goods (not exceedings 500 M., Ton	15% @ 33% of truncated base	10 lac
b. Vessels designed for the transport of persons (not exceedings 500 person)	15% @ 33% of truncated base	12 lac
c. Vessels (Other)	15% @ 33% of truncated base	Ratio basis

7. Cancellation of Revenue Collection process of tissue paper and footwear based on retail base value.

Annexure -4

Cabinet Decision on Tax & VAT issues for small enterprises published in a national daily which was eventually reverted by the Government without giving any publicity.

The Daily Star

January 6, 2005

Small industries to get long-term tax holiday

STAR REPORT

To boost the growth of small and medium enterprises (SMEs), the Cabinet Committee on Economic Affairs yesterday approved a proposal to offer tax holidays to small enterprises having a maximum investment of Tk 30 lakh.

Such enterprises in Dhaka will enjoy a tax holiday for seven years and those in Chittagong for 10 years.

And, if their investments are permanent, they will also get Vat (value-added tax) exemptions.

"We'll now ask the industries ministry to work out the details and put the decision into effect," said Finance Minister M Saifur Rahman who chaired the committee meeting yesterday.

The proposal came from the Committee on Developing the Small and Medium Industries (CDSMI) formed in 2003 headed by Prime Minister's Principal Secretary Kamal Siddiqui. It was one of a set of short-, medium- and long-term specific recommendations the CDSMI made in its report submitted recently.

The government defines a small enterprise to have a maximum capital of Tk 1.5 crore and a medium enterprise over Tk 1.5 crore up to Tk 10 crore.

The CDSMI also recommended establishing a foundation with representations of donors, civil society and SME associations to look after the SMEs.

SEE PAGE 11 COL 3

Annexure -5

Excerpts from Indian Measures for Small Scale Industries (SSI), copied from their official website

Excise and SSI

Today, the SSI sector produces almost 8000 products. The number of units have gone up from 19 lakhs in 1991 to over 31 lakhs in 1999. During the 7 year period from 1991 when liberalization began till 1998, the SSI sector created almost 42 lakhs new jobs whereas the entire organised industry including government was able to create only 14.3 lakhs new jobs.

SSI units whose clearances did not exceed Rs.30 lakhs in a financial year were exempted from payment of excise duty. ... The exemption limit was raised to Rs.50 lakhs in the budget 1998-99 and further to Rs.100 lakhs in 2000.

..

..

Normally, excise officers are not expected to visit SSI units paying less than Rs.10 lakhs duty annually. According to Mumbai II Commissionerate Trade Notice No.15/93 dated 31-3-1993, excise inspectors as well as preventive and internal audit parties can visit SSI units only with specific permission of Assistant Commissioner for specific purpose. Officers are required to enter relevant particulars in the visitors' book maintained as assessee.

Annexure -6

Published in Financial Express, Sept 1&2, 2004 in two parts under different headings

VAT collection- an innovative idea

Dr. Siddique -e- Rabbani
Professor of Physics
Dhaka University

The main reasoning behind collection of Value Added Tax (VAT) at all points of value addition is the increase in cost efficiency. At every stage of production to marketing, VAT is supposed to motivate keeping costs and profits low ultimately benefiting the consumers. However, this works in an ideal situation where there is no corruption on the tax collectors' side and no evasive tendencies among the VAT payers. Unfortunately we have a situation far from the ideal; the more points of collection we have, the more opportunities arise for corruption and tax evasion. This increases harassment to honest business concerns besides increasing the management costs and complexities of the tax collection system of the Government manifold. In actual practice only a small fraction of the money actually taken out of the purses of the business concerns on this account goes into the public treasury. Rather than increasing cost efficiency at every stage this system contributes to the contrary. Therefore in a situation as in Bangladesh, we need to minimise the points of VAT collection, and to my opinion, collection only at the final retail point is the best solution, which can take care of all the receivables from various stages. This is the point where actual cash input from consumer occurs at the time of sale while at most earlier points credit-sale is the norm; payment of VAT increases the investment load considerably on the producers, putting them into a disadvantageous position. In the interest of the country we need producers to grow. Freedom from the tension of paying VAT in such a corrupt environment will allow them to innovate and concentrate in product development and in methods of production and marketing, resulting in a much increased growth rate ultimately bringing in more financial benefits to the public exchequer besides putting the country on firmer economic ground.

We have seen the recent boost in the agro-based products and fisheries in our country, and this has happened just because they have been freed from the headache of paying taxes. In studies made in neighbouring countries having similar cultural background it has been found that growth in the number of small industries declined where tax collectors made more frequent visits and this prompted in making policies to free small industries from paying any taxes. The resulting increased growth bears out the contention clearly.

Reducing the points of VAT collection will also allow the National Board of Revenue (NBR) to concentrate on the modalities, and to innovate solutions that may lead to better results, rather than trying to beat the bush at many places.

I know NBR officials will immediately react to this suggestion saying that the retail stage is the most difficult point to collect VAT and would throw the idea aside. However, as I said above, concentrating on it and putting up innovative ideas may eventually make it a success, and I would like to suggest one here followed by the rationales behind them.

1. Make **groups of about 20 retailers** for VAT payment who sell similar items, have similar sales volume and are located in close proximity (i.e., in a market). However, retailers of diverse items and size may be grouped together in thinly populated shop areas.
2. With mutual consultation with each group NBR will open a **special VAT account for that group with a Bank** in close proximity.

3. The group will collect VAT **daily** at the end of the day from their members on their own initiative and deposit the same to the Bank the next morning (depending on practicality the frequency may be changed to a bi-weekly or weekly one, but no more than that). A preformatted chart containing the names of the members will be kept by the group where the amount paid by each member will be entered and two copies will be given to the bank – one to be subsequently forwarded to NBR. Alternatively this may be done using a computerised information transfer process where feasible.
4. Under the suggested single point collection system the present rate of 1.5% VAT at retail point (based on 15% VAT on projected 10% value addition) may be too low. However, let this be a starting point, together with abolition of VAT for very small industries only having fixed investment under Tk.30 lakh. If and when the system gains acceptance and people become habituated, the rate may gradually be increased to a reasonable amount, say, 5 to 7% on the total retail price (which will be equivalent to the present 15% on a total cumulative value addition of about 50%) with total abolition of VAT for all industries, large or small. VAT collection at import point may also be abolished at that stage.

Rationale:

1. ***Why groups of 20 ?*** On a personal level, people tend to develop and project a good image of themselves among known people around. On the other hand a person may easily deviate when s/he becomes anonymous, which happens in a large group. In the above group size of about 20 (with some flexibility in both directions) everybody will know every body else, besides each will have a rough idea of the volume of sales of the others. The above psychological traits will make them pay an amount not much below their actual sales.

   There are further advantages of having such groups. Corrupt tax officials will find it harder to convey their unlawful desires to so many people collectively.

2. ***Why daily ?*** The amount to be paid on a daily basis is pretty low and it does not affect an individual psychologically. On the other hand the collective amount on a monthly or yearly basis becomes large and a person would hesitate in paying the amount. Suppose a small shop selling Tk.3000 per day would be required to pay only Tk.45 as VAT at existing rates, and the amount is psychologically insignificant too. When compounded annually, it would become about Tk.14,000 which this retailer would be hard pressed to pay at one time – besides having a psychological aversion for paying such a large amount.

3. ***Why through local bank ?*** Obviously the group will find it easy to deposit the total amount at a local bank frequently rather than to specified banks at remote places. It will also mean a relief from harassment to the VAT payers. The group may form a monthly rotational responsibility within themselves for collecting the daily VAT from all members and depositing it to the bank. The bank may also become an arbitrar in case of any dispute between the NBR and the respective VAT paying group.

4. ***Will the business group keep the trust ?*** If we analyse human psyche, when given a trust a person finds it very difficult to break it, if the trust does not demand unreasonable and unaffordable commitments. Actually if we analyse the reasons for tax evasion, two reasons stand out – a) unreasonably high tax or VAT rate and b) offer from corrupt tax officials for tax evasion in lieu of personal benefits and threats of harassment for non-compliance to such proposals. Being the flag bearers of the law of the land they can easily crush a small business to extinction. In fact allegations that corrupt groups within NBR attempt to keep tax levels impractically high as this creates an environment to sustain their corrupt practices may not be ruled out. A few senior officials may be sincere but the presence of a strong corruption chain established through a long tradition can be felt within the NBR, which will be hard to eliminate by any Government under the present circumstances. Therefore

reasonable tax and VAT rates combined with trust on the tax payers is the only route that will be able to bypass and break such corruption chains and bring in more deposits to the public treasury.

5. ***What protection against abusers ?*** Trust begets trust – this is a natural phenomenon. Besides, it is hard for all the 20 or so business members in the suggested group to agree to a collective evasive strategy if the tax rates are reasonable. However, in extreme cases abuses of such privileges may not be ruled out. In such cases top NBR officials should sit with the groups concerned and the partner banks, and if such negotiations fail individual cases can be taken to the court of law. The suggested system will need a much smaller manpower within the NBR and the amount thus saved would be far greater than losses from such few abuses. Besides, as mentioned before, ultimately the actual collection to the Government treasury will be far greater as most business concerns will become willing payers of tax and VAT, and the country's economy will get a boost through unhindered business.
6. ***What about smuggled goods ?*** In the existing system, smuggled foreign goods get the benefit of the low retail point VAT. In the long run when 5 to 7% retail VAT would be introduced, this may act as a discouragement to smuggling.
7. ***Can it boost local industries ?*** Local industries, freed from the harassment of the tax collectors will be able to grow naturally even without any other promotional programmes by the Government. A recent study reported that we have almost zero growth rate in the small industry sector over the last ten years, while in India, waiver of all taxes from small industries with yearly revenues less than Rs.1crore has seen a significant growth rate. Today 40% of India's total industrial production comes from this small sector.

NBR- the crucial player in the industrial development: I think NBR has the main role in the development and growth of the country's industrial sector. Through favourable policies, it may provide the necessary boost for growth, or through unfavourable policies, it may destroy the whole industry in the country. In fact the British colonial powers did not want indigenous industries to grow and they formulated taxation policies to that end and created a mind-set to support these policies. Unfortunately, even after half a century of their withdrawal, we are following similar policies, and our mindset has not changed much. While an entrepreneur setting up an industry should be looked upon as a **saviour** of the land, here an entrepreneur feels as though s/he has committed a **crime**. This mindset allows every one bearing the flag of the law in hand, even a petty police constable unrelated to tax collection, to poke an entrepreneur in order to pocket some personal benefits. Besides, even at policy levels wrong taxation structures abound that discourage local production as against import of finished goods while the opposite should be the norm for any independent country. ***I feel NBR should be reconstituted so that experts from the civil society can be involved in the formulation of tax policies and in monitoring their implementation.*** Recently our Government and many donor agencies are planning to pump in money and take up promotional programmes in order to boost our small and medium scale industries. However, everything will go down the drain unless the enterprises are freed from the fallouts of negative taxation policies. I feel the relevant authorities will consider my humble suggestion on the VAT issue with due earnestness.
